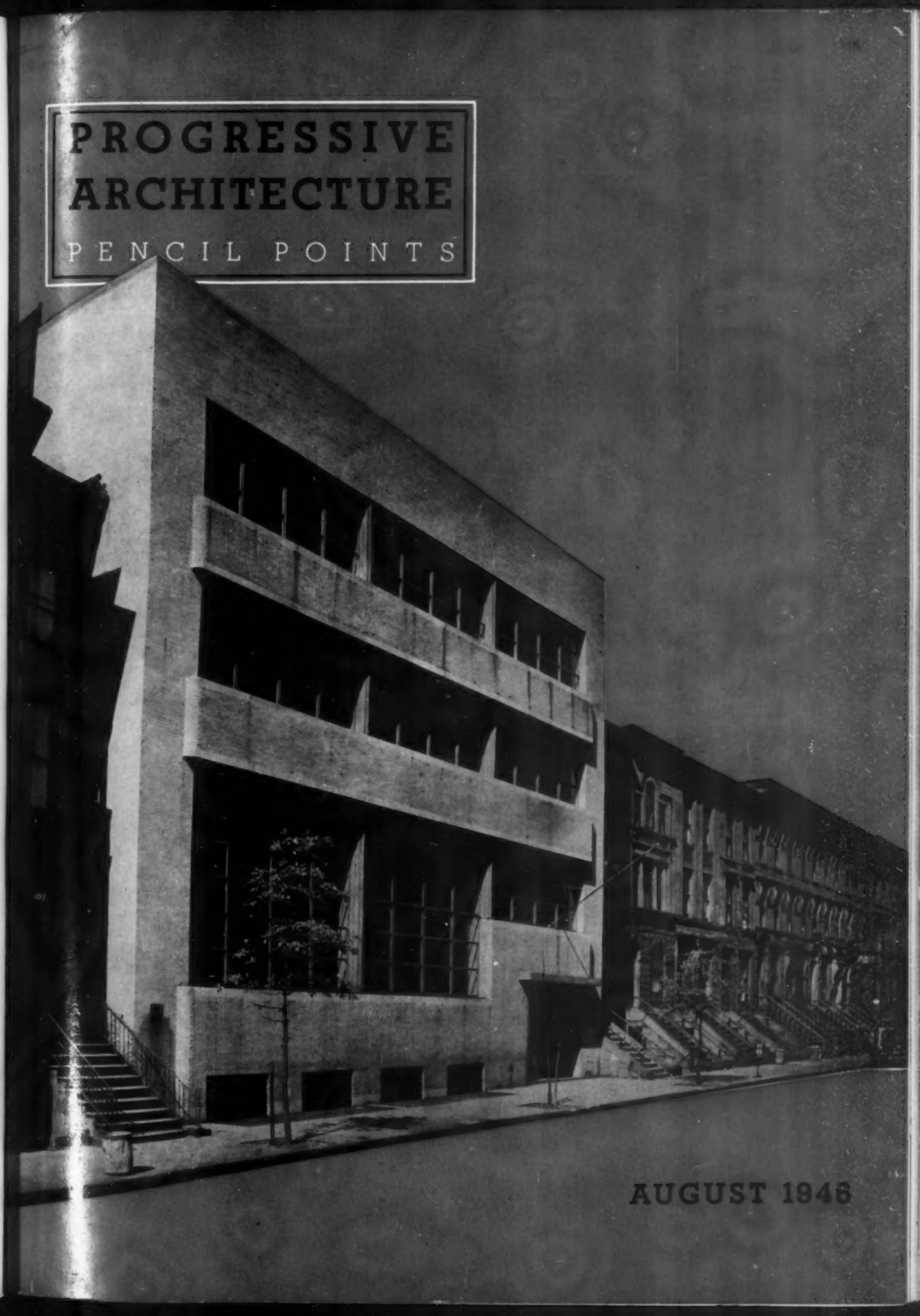
PROGRESSIVE ARCHITECTURE

PENCIL POINTS



AUGUST 1946

Jenkins PRACTICAL PIPING LAYOUTS 13

How to plan a HOT WATER RADIANT HEATING SYSTEM

Radiant heating, although it is as old in principle as the sun, is comparatively new to industry. It's use has increased rapidly in the past few years, however, because of its high operating efficiency, and because it saves valuable floor and wall space in institutions, office buildings, hospitals, and garages.

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Other types and pressure ranges of Jenkins Valves can be used for this type of layout according to the factors involved. Consultation with accredited piping engineers and contractors is recommended when adapting these suggestions to your own requirements, or when planning any major piping installations.

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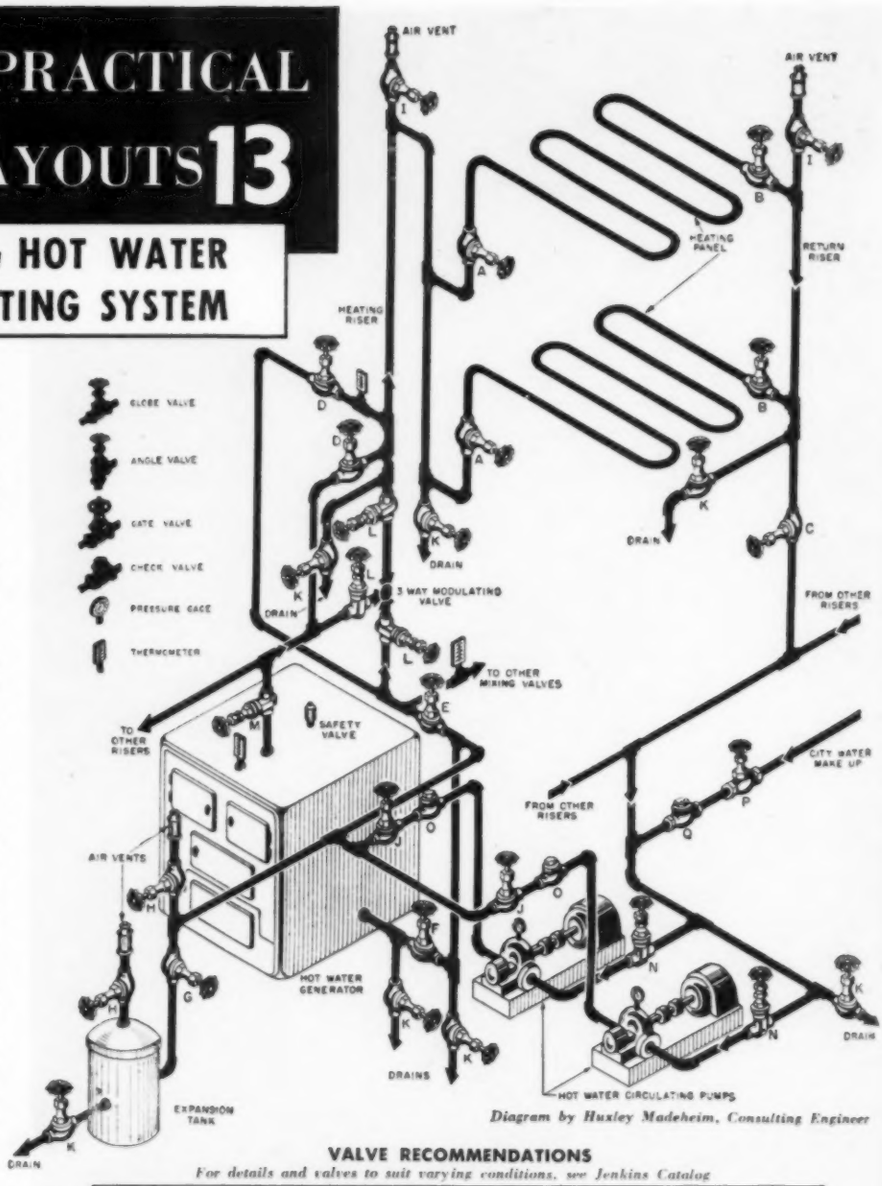

Diagram by Huxley Madeheim, Consulting Engineer

VALVE RECOMMENDATIONS

For details and valves to suit varying conditions, see Jenkins Catalog

Code	Quantity	Solder End	Screwed End	Service
A	1 per Panel	Fig. 1200 Br. Globe	Fig. 106-A	Panel Feed & Control
B	1 per Panel	Fig. 1200 Br. Globe	Fig. 106-A	Panel Return & Control
C	1 per Riser	Fig. 1200 Br. Globe	Fig. 106-A	Return Riser Shut-off & Control
D	2 per Riser	Fig. 1200 Br. Globe	Fig. 106-A	Feed Riser 3-Way By-Pass
E	1	Fig. 1200 Br. Globe	Fig. 106-A	Return to 3-Way Valve Control
F	1	Fig. 1200 Br. Globe	Fig. 106-A	Return to Heater Control
G	1	Fig. 1200 Br. Globe	Fig. 106-A	Expansion Tank Shut-off
H	2	Fig. 1200 Br. Globe	Fig. 106-A	Manual Air Vents
I	1 per Riser	Fig. 1200 Br. Globe	Fig. 106-A	Auto. Air Vent Shut-off
J	2	Fig. 1200 Br. Globe	Fig. 106-A	Pump Discharge Control
K	7	Fig. 1200 Br. Globe	Fig. 106-A	Drain Valves
L	3 per Riser	Fig. 1240 Br. Gate	Fig. 370	3-Way Valve Shut-off
M	1	Fig. 1240 Br. Gate	Fig. 370	Heater Feeder Main Shut-off
N	2	Fig. 1240 Br. Gate	Fig. 370	Pump Suction Shut-off
O	2	Fig. 1222 Br. Check	Fig. 92	Pump Discharge Checks
P	1	Fig. 106-A Br. Globe		Water Make-up
Q	1	Fig. 117-A Br. Check		Water Make-up

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PROGRESSIVE ARCHITECTURE

PENCIL POINTS

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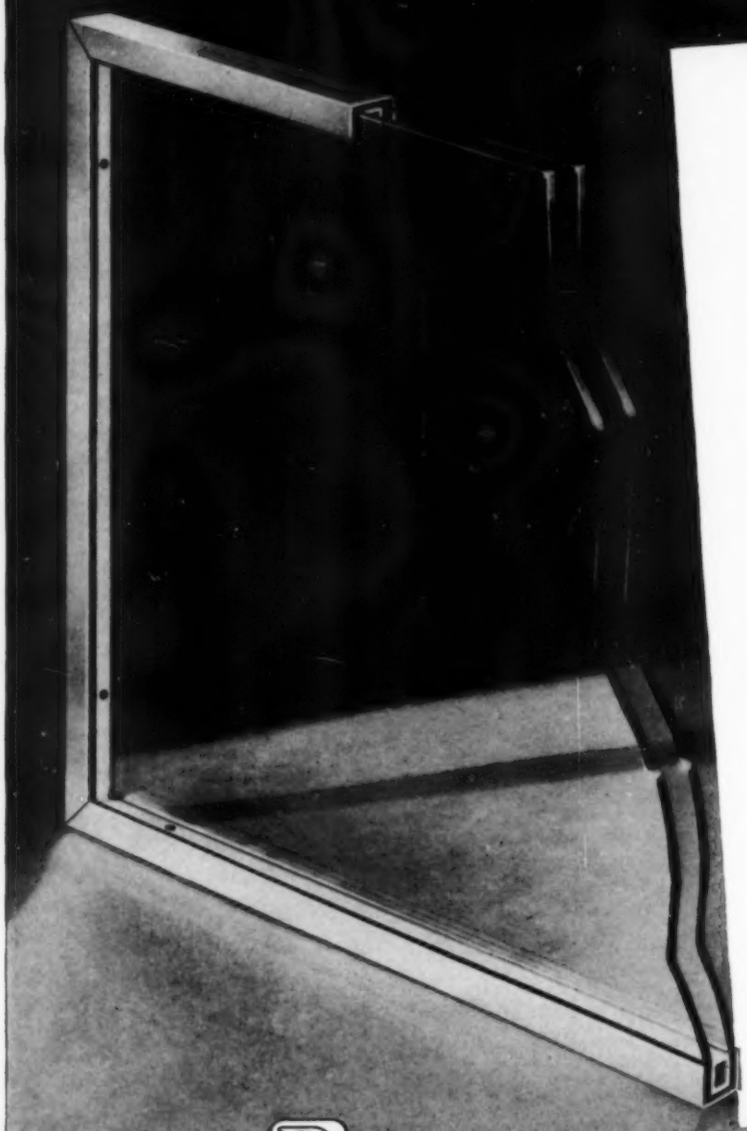
QUESTIONS and ANSWERS

"Pittsburgh's" New Window



QUESTION . . .

What is TWINDOW?

ANSWER . . .

Twindow is the newest development in insulating windows. It is a simple, prefabricated window unit, consisting of two or more panes of glass with a hermetically sealed air space between and a sturdy protecting frame of stainless steel.

QUESTION . . .

Where can TWINDOW be used most advantageously?

ANSWER . . .

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QUESTION . . .

Why was TWINDOW developed?

ANSWER . . .

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"The idea of the snack bar is to encourage the motorist to relax en route rather than to dash in and out. This will reflect favorably on sales.

"The powerful motive of the 'airplane wing' supported on hollow metal piers could become the trade-mark of the particular oil company which operates the chain of service stations. It could be easily prefabricated and shipped, as could the station itself. It does definitely do two things: it stands out obviously as a shelter for automobiles and gives direction to the station itself.

"In the lubritorium, stock garage doors are used, with glass instead of plywood panels. Plate Glass is used in the rest room and sales room. The rear wall of the rest room is in wine Carrara Glass. Through the sales room and other walls of the rest room, different color Carrara or paint may be used. The exterior of short side of the lubritorium is of Carrara Glass, with free standing letters showing the name of the company on the upper left hand corner."

Ely Jacques Kahn
Robert Allan Jacobs
Architects

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VIEWS

CONTINUING THE ARGUMENT

Dear Editor:

We note with considerable interest the sketches and arguments pro and con relative to The Small Health Center-Hospital as presented on pages 74 and 75 of the June 1946 issue of PROGRESSIVE ARCHITECTURE from the Hospital Facilities Section, United States Public Health Service.

Dr. Van Hoge's comments are entirely pertinent, but there certainly are "pros" and "cons" to the question of the advisability of such units, though we believe under existing medical service conditions in our country the "pros" probably hold the stronger position.

This office even prior to the late World War was strongly urging in its hospital and community survey reports and in its consultant service programs for a closer relationship between local health and hospital facilities, utilization of the same laboratory and outpatient accommodations, etc. Duplication of such facilities, as they now are maintained in so many communities, are a totally unjustified tax upon the people of those communities.

For example, we surveyed one community of 10,000 population in Georgia in 1940, in which there were one general hospital laboratory, one U. S. Public Health laboratory, one state operated laboratory, and a county health department and city health department, all independent, and admittedly, all doing some fair quality work. In our opinion, the hospital should have been the focal point from which all these activities radiated. The better equipped laboratory and outpatient clinic facilities which might thus have been available to all are points almost self-evident.

The Small Health Center-Hospital is certainly better than no hospital facilities without question. It could provide accommodations for the mild medical case and the minor surgical case, the numerous subdivisions of each, and for a few early days of convalescence near home for the patient just returned from some better equipped and specialist-staffed larger hospital elsewhere.

If there are dangers—not necessarily actual menaces — dormant in the too ready all-out acceptance of such units these undoubtedly lie in a possibly possessed trend toward State Medicine. There is unavoidably inherent in such plans—plans which stress the Public Health Service rather than hospital service—a certain amount of propaganda for the plan advocated by General Parran for a nationwide public health and hospital program which appeared in the May 1945 issue of *Hospitals*. This may or may not be intentional but it unquestionably exists.

Totally regardless of the "pros" and "cons" commented upon, we are of the opinion that the Small Health Center-Hospital unit must be accepted as a contribution toward the solution of our nationwide medical service problem, but at the same time trust that the freedom loving people of America will never allow a complete regimentation of their medical care.

CHARLES EDWARD REMY,
M.D., F.A.C.H.A.
Chicago 11, Ill.

MORE—AND LESS!

Dear Editor:

Let us have more such articles as "Corrosion and Pipe Selection" by Henry L. Shuldener—very informative. A little *less* California architecture perhaps.

KEITH HINCHCLIFF
Champaign, Ill.

THE SKETCHES WON HIM

Dear Editor:

I used to question and criticize everything Neutra did but from now on I shall excuse and admire. What brought on this change — "The Authority of Draftsmanship!" These sketches are grand.

The rest of the material in May fits into the modern formula very well—especially the Bishop house.

GEORGE C. RUDOLPH
New York, N. Y.

THIS FLATTERS US

Dear Editor:

I have just received your May number for which I beg to thank you. We are astonished about the contents, and we are of the opinion that this is the most interesting review on architecture we have seen up till now from the U.S.A.

G. VAN SAANE, Publisher, *Forum*
Amsterdam, Netherlands

STARTS WITH EDUCATION

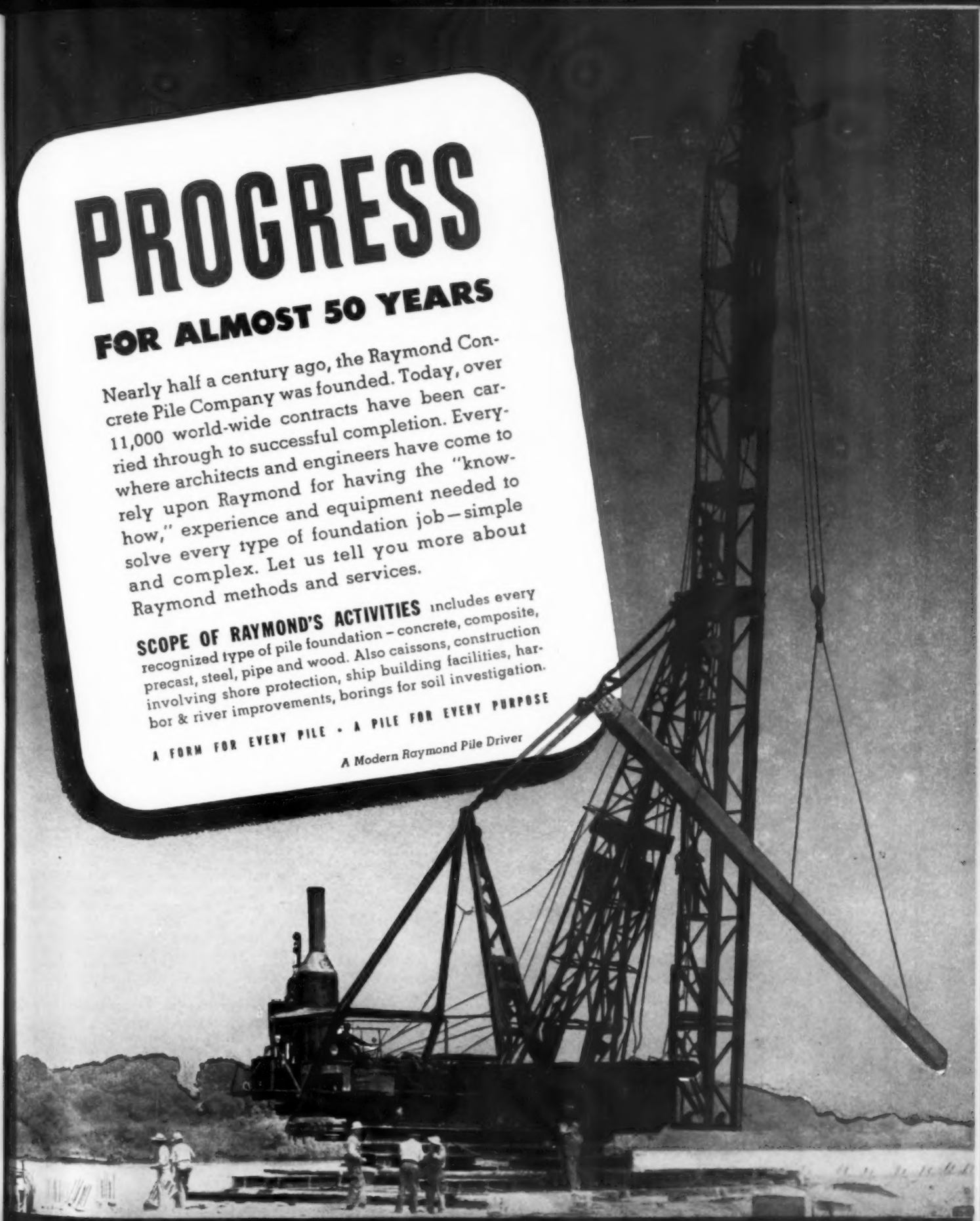
Dear Editor:

I was interested in reading Kenneth Reid's editorial on the last page of the May issue regarding progressive architecture. From my experience in an architect's office I have found that usually the architect had to work within the desires of the client, progressive as his ideas might be, if an old-fashioned Colonial was wanted, that was what was designed. I think progressivism largely starts with the education of those who desire new homes and pay the bills.

Personally, I think the greatest and first step that all who build or design homes should be sold on is that no house should be built on a lot less than one hundred feet square. All over the country now homes are being built within ten to twenty feet of each other. They would be so much more appreciated, so much better appearing, and worth so much more if they were spaced further apart. With this large country of ours, with its good transportation, I believe housing would benefit by such a step.

BENNETT R. WHEELOCK, JR.
Lincoln Park, Pa.

"Reckon you can design the living room in the shape of Texas?"



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JOBS AND MEN

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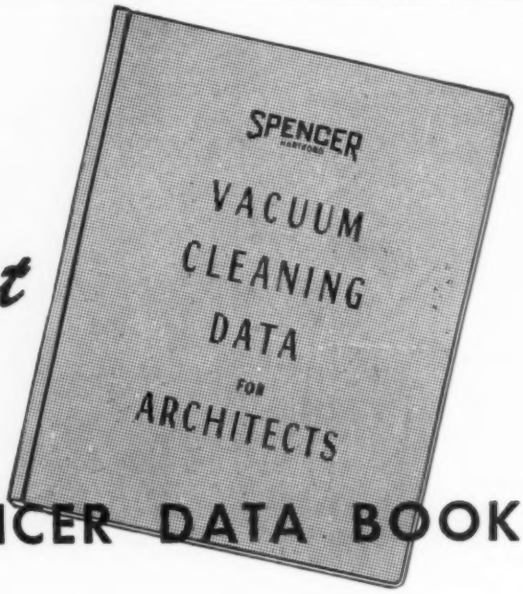

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JOBS AND MEN

(Continued from page 10)

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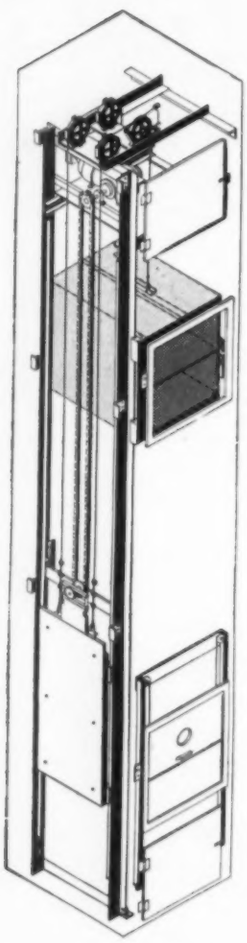

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Capacity, lbs.	200	300	500
Car width, in.	24"	30"	36"
Car depth, in.	24"	30"	36"
Hoistway width, in.	33"	39"	45"
Hoistway depth, clear in.	27"	33"	39"
Hoistway depth, including doors, in.	29"	35"	41"

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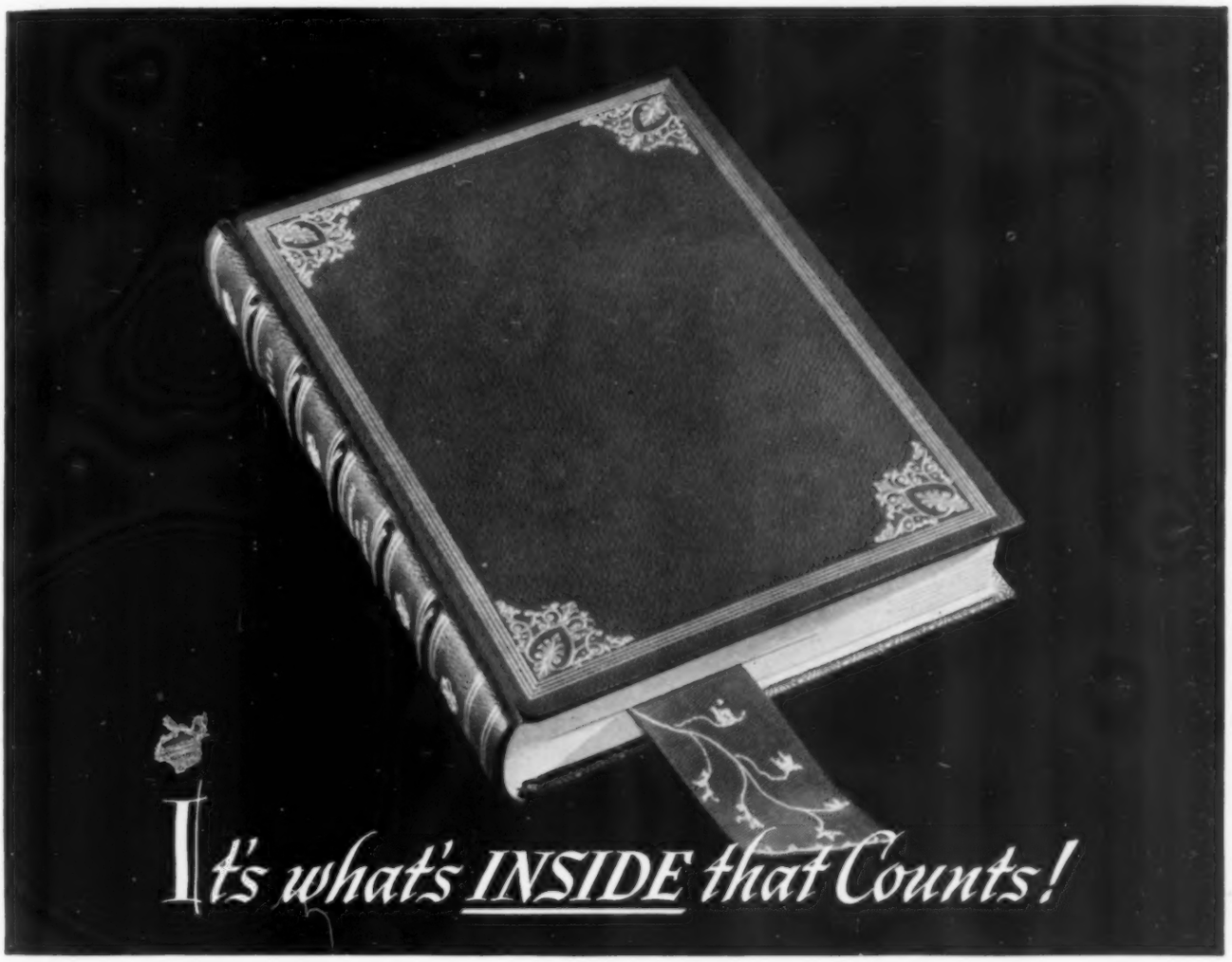

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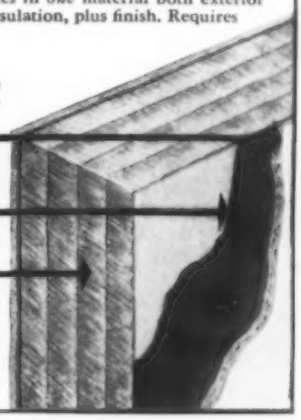
Quick Facts **on Cemesto—a typical Celotex cane-fibre building product**

A multiple-function material used in home and industrial building jobs as wall units, room partitions, and roof decks. Cemesto is fire and moisture resistant, eliminates need for intermediate support, combines in *one* material both exterior and interior surface, plus insulation, plus finish. Requires no painting.



⅛" cement-asbestos surface for exterior and interior finish.

Water and vapor-resistant bituminous adhesive bonds both exterior and interior surface to cane fibre core.

Celotex cane fibre insulation core.

Color: Warm grey.
Sizes: 4′ wide x 4′, 6′, 8′, 10′ or 12′ long in thicknesses of 1⅛", 1-9/16" and 2".

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BUILDING PRODUCTS

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THIS MONTH

HARRIS ARMSTRONG

CHARLES H. McCAULEY

HAROLD SPITZNAGEL

The suburban department store featured in this issue is representative of the challenging work of **Harris Armstrong**, Architect, of Kirkwood, Missouri. From his own account we are able to trace the development of his architectural skill, which was somewhat as follows: Forced to spend a few days at home when he was 23, he decided to pass his time by designing "the perfect house." After several days of wrestling with this problem he achieved a very unattractive set of rectangles. The one representing the kitchen had no window or outside door! Realizing that education might be useful in this emergency, he exposed himself to architectural training at Washington University and later at Ohio State. He then took a job and a wife. Somehow or other, they all survived the depression with the result that he now has "lots of work and no building materials."

LOUIS ALLEN ABRAMSON

Although he has conducted a general architectural practice in Birmingham for 21 years, **Charles H. McCauley** has cherished a special interest in hospital planning that is reflected in his Sylacauga hospital (p. 48). He is a member of the A.I.A. Committee on Hospitalization and Public Health. His spare time is devoted to two hobbies—stamp collecting and fishing. A native of Chicago, McCauley received his architectural degree from University of Illinois in 1915, and moved to Birmingham immediately after World War I.

The depression sent **Harold Spitznagel** back to his home town, Sioux Falls, South Dakota. Although he resented leaving Chicago, where he was employed following his architectural training at University of Pennsylvania, he now recognizes the "calamity" as a "most fortunate move." He has achieved distinction as a student of regional

(Continued on page 16)

NEXT MONTH

● In the September issue we will present for our readers a study of a brand new city in Brazil designed by Paul Lester Wiener and Jose Luis Sert. This is not a theoretical project but actual details of the housing and urban facilities required for workers in an airplane engine factory and future affiliated plants. The site is about twenty-five miles from Rio de Janeiro on a relatively level area. The essence of the problem may be stated as follows: TODAY, a tropical, foothill plateau with one factory and a few farms; TOMORROW, a city of 25,000, openly planned for the welfare of each inhabitant. The city is to be equipped largely with products of U. S. manufacture. The development is schemed in stages to correspond to increasing physical needs as the city grows—yet basic facilities will require no alteration because the entire ultimate expansion is being planned now in detail.

● In the same issue will be photographs of an alluring studio cottage perched on the edge of a pond near Princeton, New Jersey. The work of Kenneth Kassler, Architect, this building is of natural finished cypress on foundations of local quarry stone. It seems to us to be a small house with great amenity.

● In the Materials and Methods section the conclusion of Ben John Small's discussion of "Waterproofing and Dampproofing" and the second installment of "Insulation Data" furnished by Paul D. Close will be supplemented by an article on "Electric Panel Heat" prepared for us by L. N. Roberson, president of the Roberson Company, Seattle, Washington. The author explored the possibilities of using electric heat in the plaster of the new home he was building in 1940, discovering to his astonishment that the British had been using heat of this type since about 1907. Little design data were available, however, and there were many dire predictions about the results. It soon became apparent that his adventure was entirely practical, with the electrical rates prevailing in the Seattle area, and a number of installations have been made since his pioneer success there.

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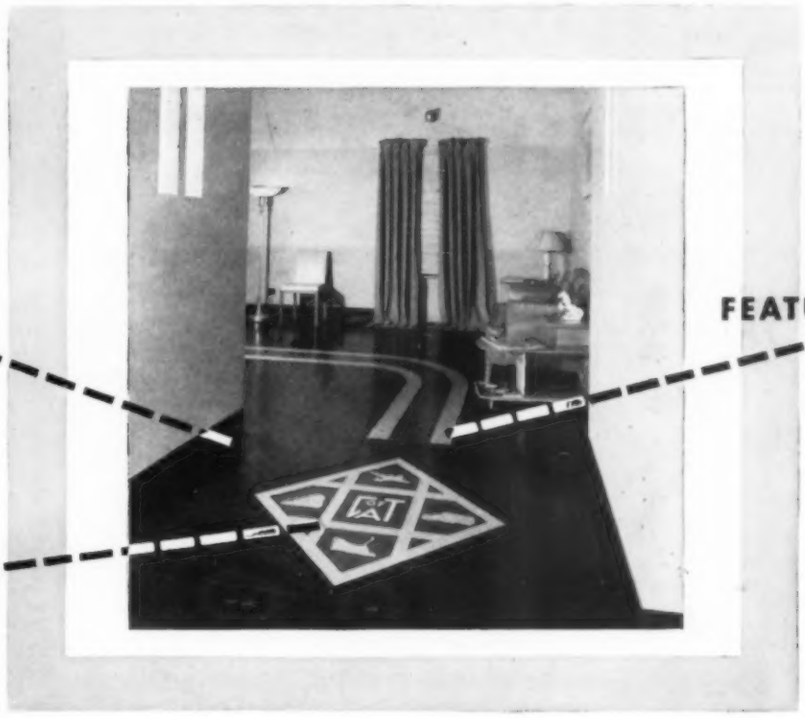
When you use these Tile-Tex "Extras"



When you specify Tile-Tex Asphalt Tile, you have at your disposal many tools for executing the floor designs you need.

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LOOK TO Tile-Tex IN '46
FOR THE BEST IN FLOORING

ASPHALT TILE-TEX TILE

THIS MONTH

(Continued from page 14)

characteristics and as a creator of individual design expression. In discussing his practice he mentions to us that he finds "every job proves to be a tough one and you don't accomplish much in the way of design unless you can sell the client on the advisability of departing from the conventional path."

Shorn of the depressing classic tradition for library buildings, the Harlem branch of the New York Public Library (p. 56) shows how **Louis Allen Abramson**, Architect, makes the most of a constricted building site. He is rare among architects because he boasts that he never has designed a residence for a client! His practice, established in New York after study at Columbia University and employment in Seattle, Washington, and New York, has been devoted principally to institutional work, restaurant and retail merchandising establishments.

The Highland Park Baptist Church in Chattanooga, Tennessee (p. 60) was designed by **Harrison Gill** and **Mario Bianculli**, Architects of that city, whose general practice includes public and institutional projects in several southern states. Gill has designed a number of churches during his long practice in Florida, New York, Connecticut, and, since 1937, in Tennessee. A native of Missouri, he was educated in Rome and received pre-engineering training at William Jewell College where he graduated in 1917. During World War I he served as a fighter pilot in the R.A.F., and upon returning to this country started his architectural studies at Columbia University, traveled, and gained experience in New York offices. In addition to his practice he has found time to win recognition in architectural competitions and also to serve for three years as Chairman of the Chattanooga City Planning Commission.

HARRISON GILL

MARIO BIANCULLI

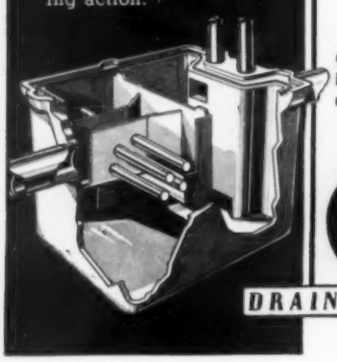
Bianculli resigned as principal architect of TVA, after ten years on the architectural staff of the Authority, to become the partner of Gill. His contribution to the architectural excellence of TVA projects has received national recognition, and he has served as a consulting architect for the Rural Electrification Administration and directed a research project on public libraries for the Tennessee Valley Library Council. He has sought to foster a better understanding of contemporary architecture in the South through publication of his work and appearances as a speaker. The son of a famous Italian architect, Bianculli was born in Naples and in 1922 graduated as architect-engineer from University of Naples. The following year he came to the U.S. on a fellowship and was subsequently connected with prominent engineering and architectural firms in New York, including the office of Andrew J. Thomas and departments of the State of New York.

(Continued on page 18)

THE New WADE HYDRAFILTER
double-acting grease interceptor

THE INSIDE STORY

A layer of grease built up around a series of tension tubes hydraulically filters most of the grease from incoming waste liquids. Final gravity separation takes place over a smooth floor that cannot catch and clog with solid matter. Special insert cover allows easy removal of collected grease. Optional top-side air vents prevent siphoning action.



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Here, at last, is a truly scientific method of grease interception. The Wade HydraFilter, after months of research, experiment and testing, features an entirely new principle: hydraulic filtering OF grease BY grease. This, combined with conventional gravity separation, enables HydraFilter to handle MORE grease for its size, MORE efficiently.

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can keep your clients happy, too!

The Alligator gets plenty of wear and tear as he sloshes through the swamps. Does it worry him? Not a bit. He knows his *armored wearing surface* will keep him safe and sound.

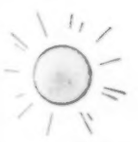
The Barrett Specification* Roof, with its armored wearing surface of gravel or slag, provides comparable protection for building structures. It's so tough and long-wearing *it can be bonded against repairs and maintenance expense for as long as 20 years.*

Built up of alternate layers of coal-tar pitch and felt, topped by a thick *pouring* of pitch to *anchor* the gravel or slag wearing surface, it is the toughest, longest-lasting built-up roof made. It is waterproof, fire-safe, sun-resistant, and armored against mechanical damage.

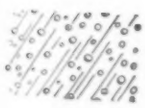
As a service to your clients, recommend Barrett Specification Roofs on the buildings you design. The Atomic Bomb Plant at Oak Ridge, Tenn., the Empire State and R.C.A. buildings in New York, and many other famous American buildings—all Barrett-roofed—confirm the soundness of your recommendation.

Over 90 years of successful roofing experience has demonstrated the sound value of the gravel or slag wearing surface of a Barrett Specification* Roof:

1. It holds in place the heavy-poured (not mopped) top coat of coal-tar pitch—providing a doubly thick waterproof covering.



2. It provides protection against the sun's actinic rays which otherwise dry out the valuable oils in roofing bitumens.



3. It protects the roof against mechanical damage, hail and wind, wear and tear.

4. It interposes a surface of fireproof rock between the building and flying embers—makes a roof that carries Fire Underwriters' Class A Rating.

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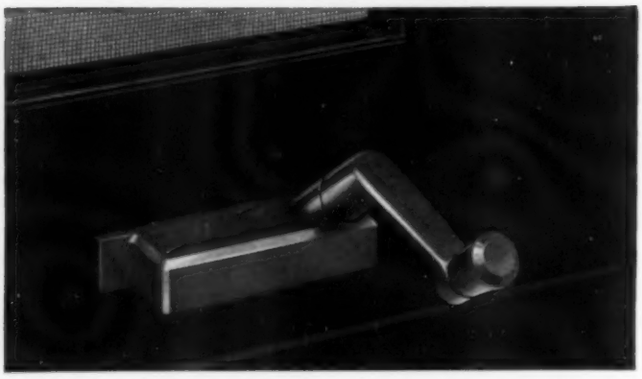
Under Screen

WOOD CASEMENT OPERATOR



Preferred by leading architects and builders and originated by Getty, this efficient, practical window operator is designed for use with wood sash. Rugged in design, the Getty worm and gear construction is sturdy, with no backlash. Positive casement control is assured at all times. Its inherent strength and simplicity assure life-long, trouble-free operation.

Easy to install. Only two simple measurements: 2¼" from jamb; 1" minimum from sash. Only six screws in entire installation.

Low in cost. High quality zinc die casting.

Can be used without screens as well as with wood, metal, or roll screens.

Long-wear cadmium-plated steel channel guides for butt or extension type hinges.

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Standard statuary bronze finish (EBL). Also in standard plated finishes.

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THIS MONTH

(Continued from page 16)

PAUL D. CLOSE

The discussion of "Theory and Practice of Insulation" in the Materials and Methods section of this issue is by **Paul D. Close**, who has been a productive author of articles on insulation and heating as well as a textbook, *Building Insulation*, now in its third edition. He was formerly technical secretary of the Insulation Board Institute and earlier of the American Society of Heating and Ventilating Engineers in New York. He also taught heating, ventilating, and air conditioning at the Polytechnic Institute of Brooklyn, and has worked with manufacturing organizations as well as numerous professional offices. He is a graduate of University of Illinois.

Ben John Small, the author of "Waterproofing and Dampproofing," heads the specification section of Alfred Hopkins & Associates, Architect-Engineers, of New York. He was formerly a specification writer with the New York City Department of Public Works, specializing in hospital specifications. He is particularly interested in "streamlining of specifications and in cavity wall construction," as well as restrictive trade practices in the construction industry.

BEN JOHN SMALL

INSTALL STEEL PIPING
ADEQUATE FOR TOMORROW'S NEEDS

··Because Bud is watering the spinach!

"DISHES, dishes, everywhere and no water in the sink" is the sad case of Sis when Bud waters the spinach. It's actually the fault of the fellow who put in those small diameter water pipes when the house was built. He didn't plan for today, when "water, water, everywhere" is the growing need.

So...if you're responsible for some of the water systems of the millions of new American homes and for modernizing old homes--take a tip from the past and guarantee satisfaction and free-flowing water with adequate steel pipe.

Don't forget the modern equipment that's to be installed--automatic laundries, dishwashers, garbage disposal units, etc. as well as extra lavatories and showers your clients want. For all of them, the pipe-line is the life-line of efficient operation. Remember, too, that with city water pressures constant, you regulate the individual water supply by installing steel pipe of larger diameter. So, it's up to you.

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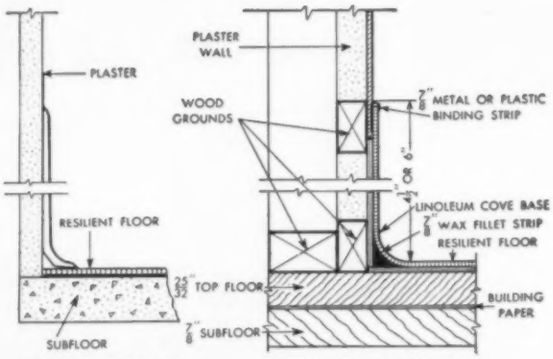
FLOORING

COVE BASE TREATMENTS FOR RESILIENT FLOORS



TOP-SET COVE BASE FLASH TYPE COVE BASE

Cove base treatment of the floor and wall junction is generally regarded as the most satisfactory method of finishing off resilient floor installations. It is rarely more costly than conventional baseboard treatments and, in many cases, is more economical. Furthermore, it possesses definite advantages of beauty and utility.

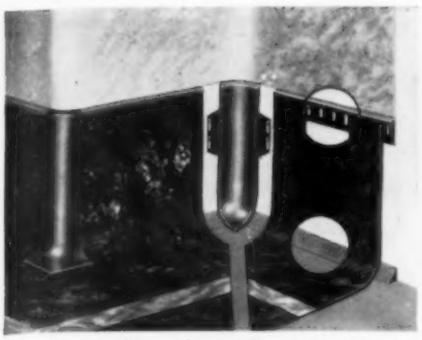
Sharp, dirt-collecting corners and seams are eliminated when a resilient flooring is coved from the floor up the wall, and the entire installation achieves a cleaner and neater appearance. In addition, a flash type cove base permits the floor colors to be carried up the wall, which is often a decorative advantage.

Both standard cove base treatments—flash type and top-set—may be used with all types of resilient flooring. However, only linoleum and asphalt tile can themselves be flashed up the wall from the floor. Linotile* (Oil-Bonded) is so dense it cannot easily be forced into the corner against the fillet strips, and rubber tile is so springy that standard adhesives will not hold it in place without mechanical aids. However, a flash type cove base of linoleum or asphalt tile can be used satisfactorily for Linotile or rubber tile installations.

Flash type cove base—This type of cove base is the standard for linoleum installations and is very widely used. The base is formed by coving the linoleum from the floor over a 7/8" wax fillet and up the wall, terminating in a metal binding strip. The material is held in place by adhesive and the mechanical grip of the binding strip which is nailed to the wall. The wax fillet is advantageous since, as the subfloor expands and contracts, the fillet absorbs the shock and helps prevent the flooring material from cracking. Although flash type coving may be employed with asphalt tile installations, it is used to a limited extent.

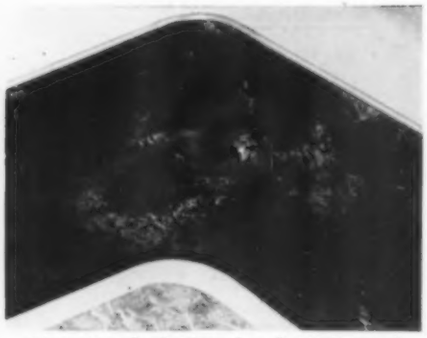
Flash type cove base is carried around square inside and outside corners by scribing and fitting to metal inside and outside corner pieces. Inside corners, however, can be also fitted by cutting alone, although it is usually desirable to have uniformity of fittings on installations involving inside and outside corners.

Round corners can be fitted cleanly and smoothly on the job without extra metal pieces, using only the metal binding strip and wax fillet. Installation



Metal inside and outside corner pieces and end stops for linoleum flash type coving are illustrated in this cut-away view. The wax fillet supports the material at the point of curvature. Adhesive and the binding strip hold it in place.

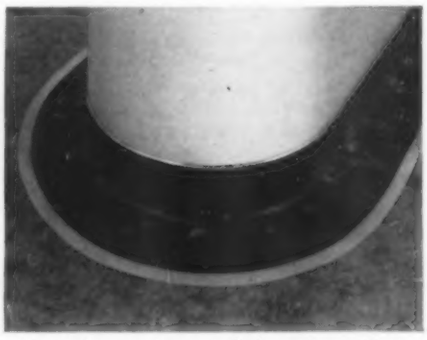
Round inside corners can be fitted on the job with flash type cove base as shown above. The lines on the floor are drawn by butting a square against walls where curves begin. Distance from intersection to the wall is radius of curve.



Here the final piece has been inserted and the smooth inside rounded corner is finished. The radius for cutting the curved piece was established by the method described at left. The seam comes at the upper edge of the fillet.

Asphalt top-set cove base, a new development, greatly simplifies installation because it can be formed easily on the job to fit intricate corners and curves. By heating and cutting a notch from the flange, a neat inside corner is formed.

An added advantage of asphalt coving is that inside and outside corners can be formed from a single piece to fit as illustrated above. This type of coving is thermoplastic, conforms to minor irregularities at the base of the wall.



Smooth, continuous flash type coving can be accomplished around circular, semicircular, or special curved surfaces as illustrated here. The detailed procedure for this is covered in Armstrong's specifications for flash type cove base.

details for flash type cove base are given in the drawing at left and the photographs above.

Asphalt top-set cove base— A relatively new development in cove base treatments, usable with all types of resilient floors, is the asphalt top-set type. It is molded from the same ingredients that compose asphalt tile, but the Armstrong formulation has been altered slightly to give flexibility in the finished product. Any top-set type of cove base, also referred to as the "compression type," has the advantage of reducing installation time by eliminating the need for accurate fitting of the floor material along walls.

The asphalt cove base is unusually practical and versatile. The asphalt material, being thermoplastic, can easily be fitted around sharp inside and outside corners by heating the cove base on the job and employing a minimum of cutting. (See photographs.) Round corners and sweeping curved surfaces, of course, present no fitting problem. In addition, asphalt cove base will conform to minor irregularities in the wall surface and continue to fit snugly.

Saving in Cost—Some type of cove base is desirable in a wide variety of interiors. Often it can be the means of substantial cost savings. For example, in construction where curved walls, serpentine counters and partitions, rounded columns, and streamlined pillars are commonly used, the ease of fitting cove bases makes them decidedly more economical than conventional baseboard treatments involving costly fitting of wood or stone bases to curved surfaces.

Planning for Installation—In new construction the architect should provide for a wooden ground in the wall at the proper height for nailing the metal binding strip for flash type cove base. This is the ideal construction, but in remodelling where the wall is not being refinished, flash type cove base can usually be successfully installed even without a wooden ground. Some walls are encountered, however, that do not provide a good base for the adhesives used in cove base installation. Such a case is the glazed ceramic tile wall, which is not porous enough to absorb the adhesive. This problem has been studied by Armstrong's Research Laboratories and the following installation procedure is suggested: Bond a felt facing to the wall with Armstrong's No. 236 Cement. The felt will absorb the adhesive, resulting in a good bond. Then cement the linoleum cove to the felt with the same adhesive. This method has proved successful for both felt and burlap backed linoleum. When asphalt top-set coving is employed, it is best to use an asbestos board in place of the felt.

This and similar specialized problems relating to the installation of resilient floors are under constant study in Armstrong's Research Laboratories. Architects desiring more complete information about cove base treatment or any other phase of resilient floor installation are invited to write for specifications or detailed data on specific problems to Armstrong Cork Company, 6908 State Street, Lancaster, Pennsylvania.

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On the other hand, the yearly fuel cost of Petro equipment is frequently several hundred dollars less than that of other comparable equipment. Fuel expense, however, is paid every year. As the years add up, the significantly lower Petro fuel costs represent savings that often are nothing short of spectacular. Owners also benefit from Petro's characteristically smaller maintenance charges. This means another substantial annual saving, that cannot be over-emphasized.

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> "Under the head of heating cost we include both fuel cost and labor expense for maintenance and repair. Substantial proof of the heating cost economy of Petro Systems lies in the fact that, in our opinion, they provide a ceiling on fuel costs because of their combustion efficiency, while their operation eliminates labor costs in the automatic systems and greatly reduces them in the semi-automatic systems.
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> "We like Petro Burners and our clients like them. We fully expect that liquid fuel and the contribution of Petro will continue in helping in the solution of the heating problems for our industries and our homes."

A Petro Oil Burning System pays a maximum return to the owner, because it is built to operate with consistent, dependable economy.

Lee Schoen is a member of Eugene Schoen & Sons, a long-established architectural firm of New York, who have designed such buildings as the Nathan Mfg. Co. Plant (now N. Y. & Queens Light & Power Co.) in Flushing, L. I.; Simplex Automobile Plant in New Brunswick, N. J.; Marine Electric Co. in Brooklyn, N. Y.; Polygraphic Corp., Bennington, Vt.; and interiors for the Center Theater, Rockefeller Center, N. Y. Mr. Schoen recently provided for a number of domestic Petro Burners in a group of five dwellings for the Philwood Estate in St. Joseph, New York.

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on Petro Industrial Burners are in catalog files of Sweet's and Domestic Engineering. Details on Petro Domestic Burners available in separate catalog. Copy of either sent gladly on request.

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PROGRESSIVE
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PROGRESSIVE ARCHITECTURE ACCEPTS YOUR ENDORSEMENT

Four years ago PENCIL POINTS, which had been a general journal for the drafting room, changed its name to THE NEW PENCIL POINTS and focused its attention on improvement in design. Through a challenging statement of purpose the magazine of architecture drew excited comments from progressive members of the profession who applauded its intention to "look forward, not back," to "fight for good architecture . . . fight against bad architecture . . . fight against the meretricious, the insincere. . . ."

Two years ago the magazine, adopting the name PROGRESSIVE ARCHITECTURE, rededicated itself "to the vigorous promotion of what we believe to be good architecture and to the active encouragement of all . . . who work honestly at improving the human environment." Again there was applause from the designers who are concerned with progress in architecture in the United States.

There were skeptics. Publishing an architectural magazine which is not a record of all current work, good or bad, which is not a forum where the business troubles of all segments of the disjointed "building industry" can be aired, but which is an honest, objective professional journal, dedicated to improvement in design, from broad planning to details of construction, is a nice idea—but it cannot succeed—these skeptics said. They were wrong.

Today, standing as squarely as ever for PROGRESSIVE ARCHITECTURE, we are proud to announce that we have the largest professional circulation ever held by any architectural magazine. We have proved that we are not long-haired theorists removed from reality. The magazine is so thoroughly read by practicing professionals that we receive every month more than five thousand requests for technical information relating to building products, materials, and equipment. No other publication has ever approached this figure, either.

So PROGRESSIVE ARCHITECTURE, carrying the torch for good design related to contemporary needs, is at the same time the *practical, useful* magazine. The practice of architecture is moving forward, and our faith that this was so four years ago, restated two years ago, needs no further editorializing. We can point with pride. Be assured that there will be no wavering in our purpose.

The Editors

Model photos by Bennett Tucker

PROPOSED BRANCH DEPARTMENT STORE, ST. LOUIS, MISSOURI

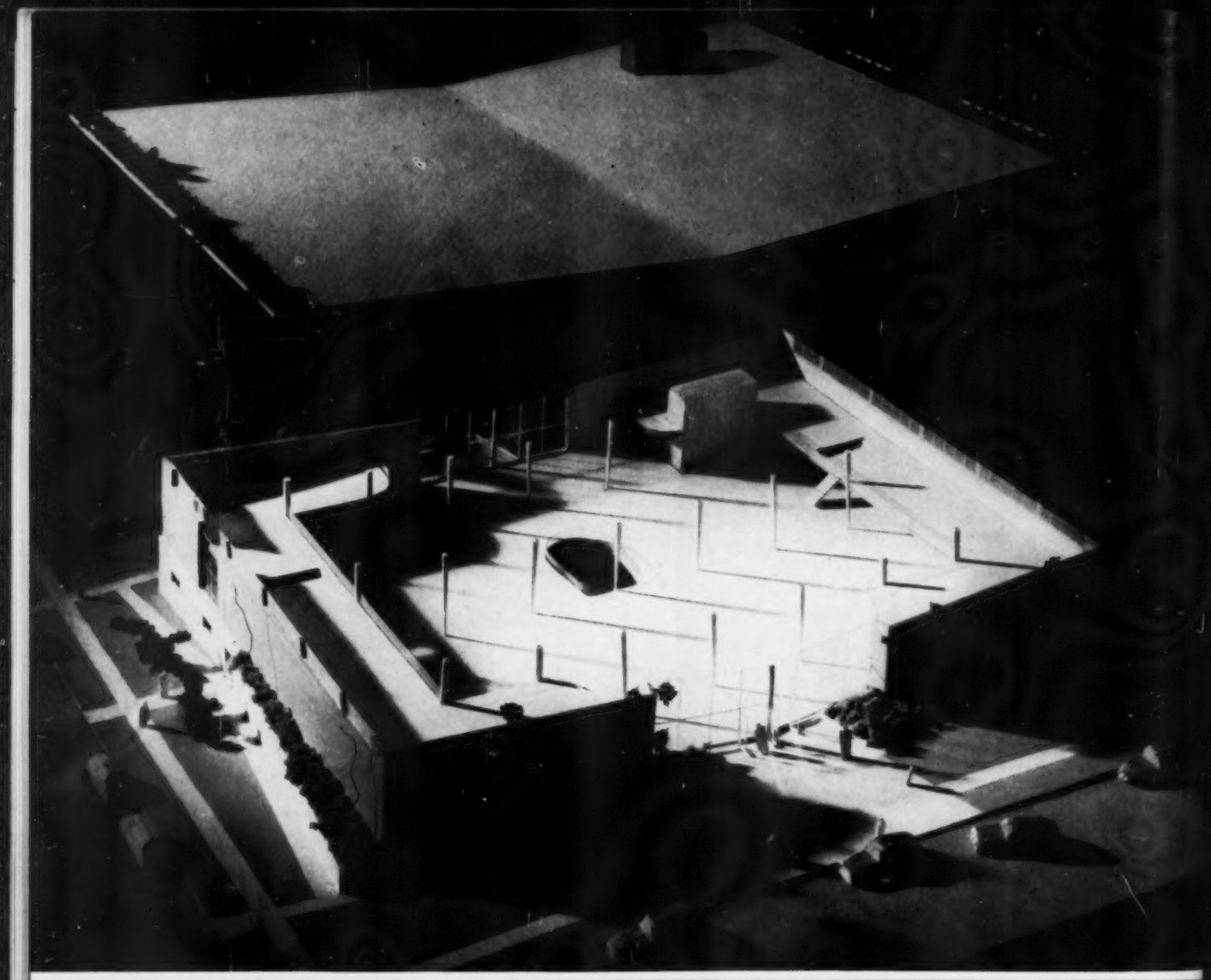
HARRIS ARMSTRONG, Architect

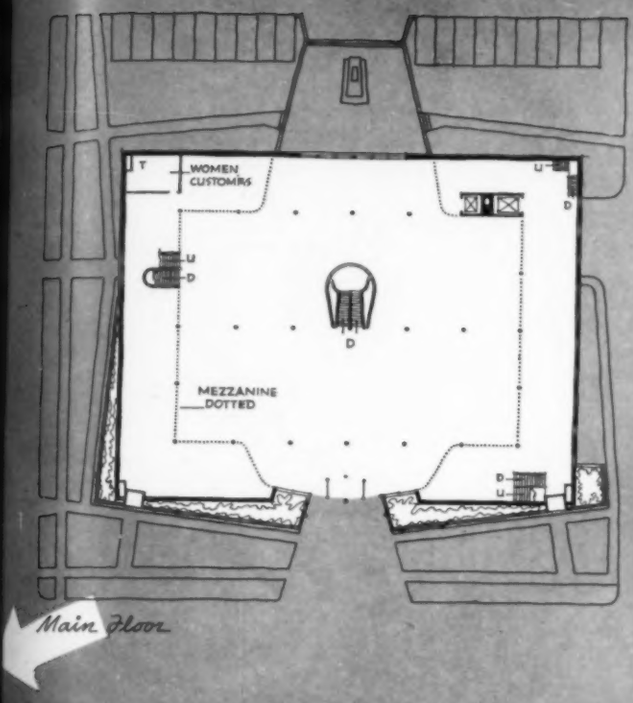
Ingenious use of a sloping site results in entrances at three levels, with the different types of circulation desirably separated. For an emporium whose business would be the display and sale of exciting new things for contemporary living, the simplicity of the plan and the forward-looking design expression seem eminently appropriate.

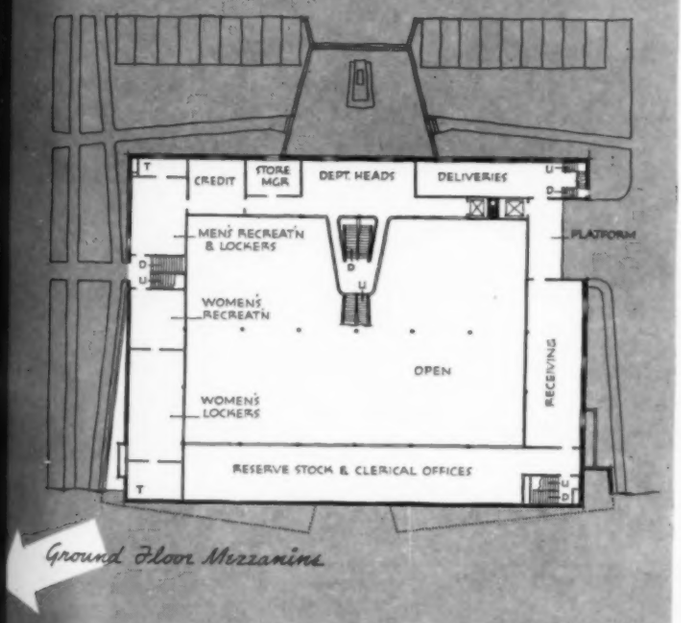
This proposed scheme was developed for the well known St. Louis merchants Scruggs-Vandervoort-Barney, Inc. Basic to the plan was the desire to extend the services of the department store out into one of the fastest developing areas of the city and to make shopping as convenient for the automobile customer as for the pedestrian.

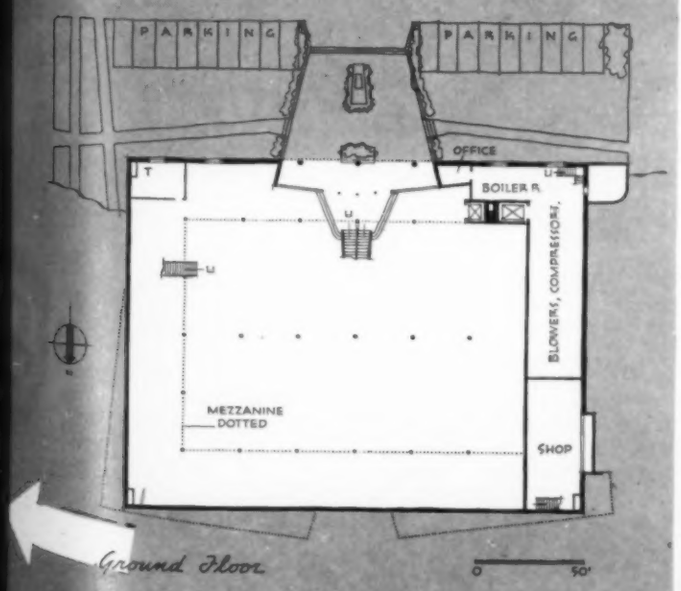
The site, already acquired, is 190 feet by 400 feet in area, cut through by a 20-foot alley. The lot faces north, and the slope of the site allows for two main sales-floor levels, both of them at grade.

In design expression, the architect has consciously worked for an inviting, informal, gay atmosphere, as contemporary in appearance as the up-to-date merchandise which the store will distribute. Among the elements employed to gain this result are the butterfly roof, with broad outriggers to support planting; reverse diminution of the interior structural columns; the generous use of general landscaping, the large glass windows, and bright color schemes.









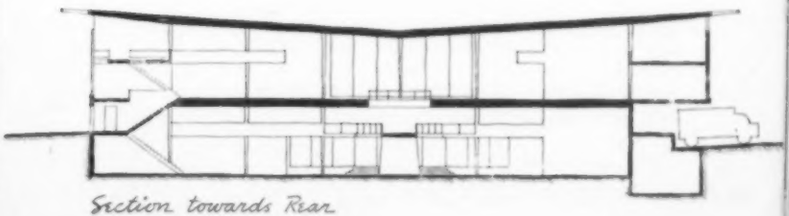
BRANCH DEPARTMENT STORE

HARRIS ARMSTRONG, Architect

The lot slope was utilized to solve the problem of providing separate but related circulation channels for customers, personnel, and merchandise. Ingress and egress of customers are served on the upper (streetfront) level by centrally placed doors, and on the lower floor by similar entrance and exit opening directly out to the landscaped parking area to the south. At the mezzanine level, separate entrances serve personnel and merchandise. Doors on the east bring personnel directly into locker space and thence, either up or down to work stations. On the west, merchandise enters the loading dock via the alley.

The flexibility of the sales-floor layouts is reflected in the standardized spacing of columns and proposed continuous placement of electric and telephone conduits and cash-tube outlets. The entire store may thus be rearranged without recourse to the building trades.

The proposed structural scheme consists of masonry walls, with large double-glazed areas; long-span steel joists, and steel columns. Heating and cooling would be handled from the four corners of the building, with boilers and compressors located under the loading-dock area. Ceilings are sound absorbent, and the upper floor will be carpeted to ward off the deadly decibels.



Section towards Rear

SYLACAUGA HOSPITAL, SYLACAUGA, ALA.

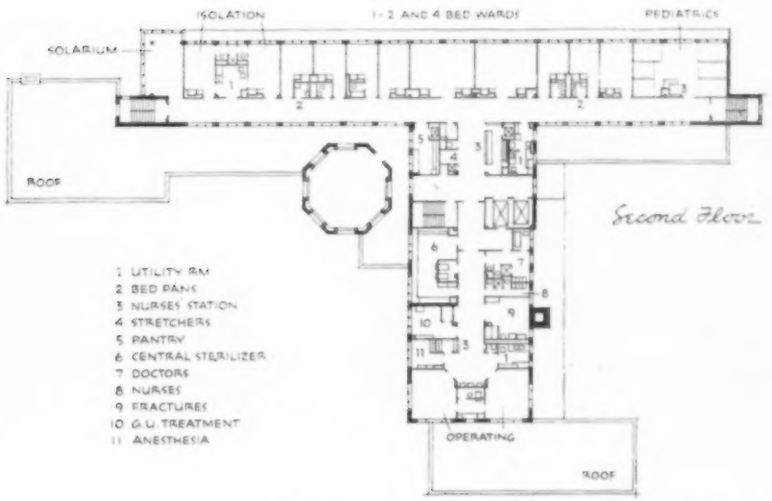
CHARLES H. McCAULEY, Architect

To the best of our knowledge, this is the first general hospital to be built in this country with all patients' rooms organized along the southern wall, completely separated from hospital noise and the traffic approaches to the building. In addition, it is extraordinary that this most progressive hospital yet to appear in the United States should turn up in the South, where conservatism and tradition have so often crowded the Muse.

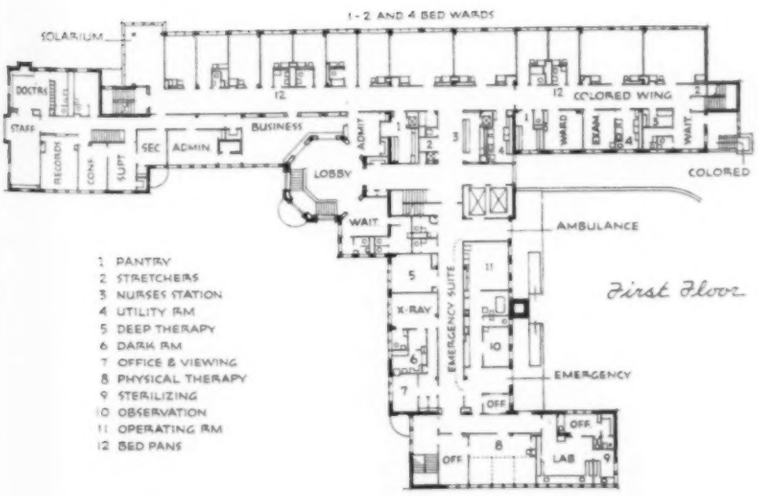
Raising of first floor provides complete above-grade daylighting for ground-floor rooms. Storage centrally located in relation to service entrance. Adequate facilities for nurses.

Photos by Rodney McCay Morgan

Delivery room suite (also operating rooms below) located in cul de sac, with no interfering traffic; two-way elevator to serve these. Well lighted cross lobby for elevator landings and visitors' space.



Excellent daylighting of nursing unit corridor in which all rooms are at one side; increased cross ventilation. Sink rooms, nurses' station, elevators centrally located but away from patients' rooms.



25-bed nursing unit with all rooms facing south. Complete emergency department, separate from all other services. Full adjunct diagnostic facilities. A questionable element: access to superintendent's office from main entrance involves passing through entire business office or traversing nursing-unit corridor.

The T-shaped plan is the key to this multiple-story 100-bed hospital. Entrance for visitors and doctors is in the northeast angle of the T; the service ramp occurs in the northwest angle. Thus, not only are private cars and delivery truck services separated, but all of this traffic is on the north, out of sight and sound of the nursing units, which are lined along the southern wall. In addition, placement of the elevators near the joining of the leg and cross arm of the T locates these important circulation elements as centrally as possible.

SOUTH ELEVATION, with continuous, concrete sunshades above windows of patients' rooms.

SOLARIA, at a southeast corner.

SYLACAUGA HOSPITAL

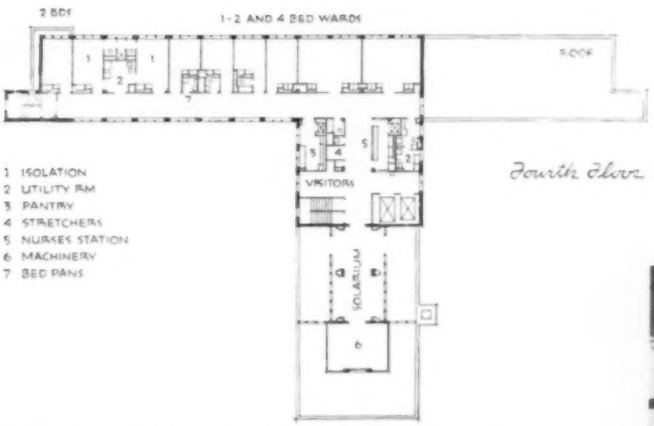
CHARLES H. McCAULEY, Architect

The separation between traffic entrances and the quiet patients' area is well illustrated in the photographs at top and bottom of this page. One wonders if convalescence would not be aided were there some sort of planned landscaping around the buildings. It would certainly improve the appearance of things. The structure is monolithic concrete built through use of removable metal panel forms.

AMBULANCE AND EMERGENCY ENTRANCES come in the northwest angle of the building.

ROOFTOP DAY ROOM AND TERRACES open to both east and west.

The well lighted ELEVATOR-LANDING, cross corridor.



Partial floor; could be extended to form another complete nursing unit. Rooftop terraces on both east and west.

PATIENTS' ROOM

THE RAMPED EMERGENCY DOCK; ambulance dock at rear.

NURSES' STATION on third floor.

One of the pair of OPERATING ROOMS.

OFF-CORRIDOR PARKING provided beneath storage cabinets.

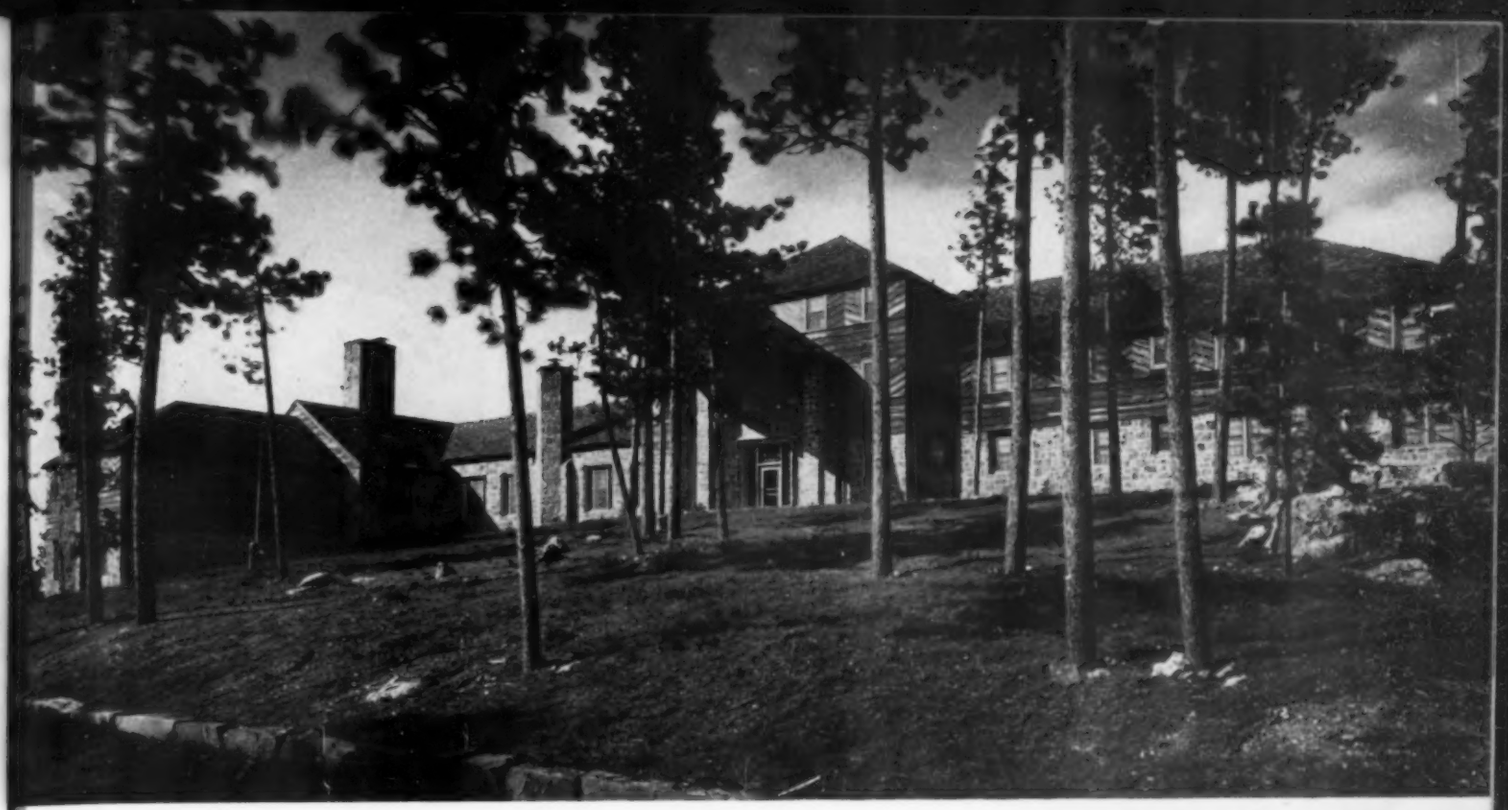
SYLACAUGA HOSPITAL

CHARLES H. McCAULEY, Architect

More than usual care has been given to the functional arrangement of the various plan elements. Operating and delivery room suites are placed at the end of corridors, so that there is no cross traffic; storage has been worked out to free the corridors of a clutter of miscellaneous equipment, and smooth, hard surfaces have been employed in those areas where absolute cleanliness must be maintained at all times.

The vertical scheme of the plan, with but a single nursing unit on each floor, is of the type which could readily be expanded upward, with duplication of functions to serve the added floors.

LABORATORY



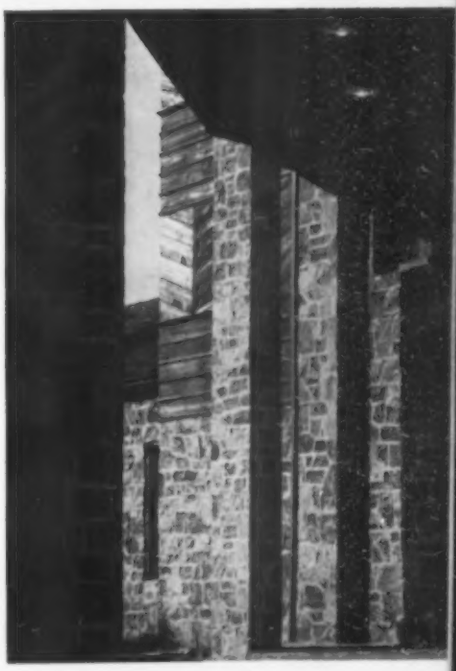
Photos by Everett Kroeger

SYLVAN LAKE HOTEL, SOUTH DAKOTA

HAROLD SPITZNAGEL, Architect

One of the most engaging trends in architecture is the search for appropriate regional expression. Almost inevitably, as in the case of this resort hotel built some ten years ago, highly personal design results. The architect admits that, were he to handle this same commission today, he would open things up more. But considered in the light of the time when it was built and the established tradition of the National Park Log Cabin Style precedent, this represents a vigorous departure in form, structural expression, and amenity. From just such challenges to convention, progress comes.

The hotel, built to replace an older one destroyed by fire, is operated by the South Dakota State Game and Fish Commission during the summer months. Located at the top of a ridge with sweeping views, it is arranged in plan to follow the crest of the hill. Masonry of moss-encrusted local stone and standard frame construction constitute the exterior fabric of the building. Roofing is of shingle tile, ranging from a deep tone at the eaves to red at the ridge. The entire hill is of solid rock; hence excavation work had to be kept to a minimum.



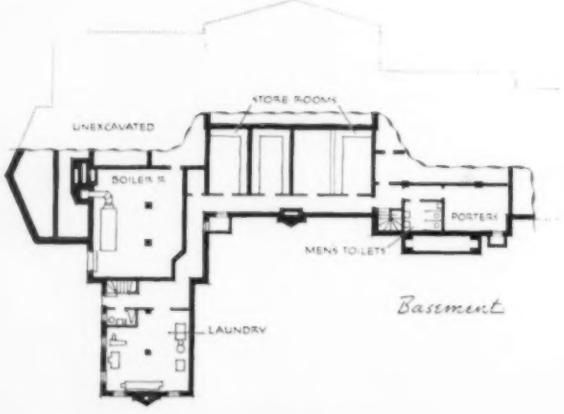
THE ENTRANCE PORCH is planned in the form of an Indian arrowhead.

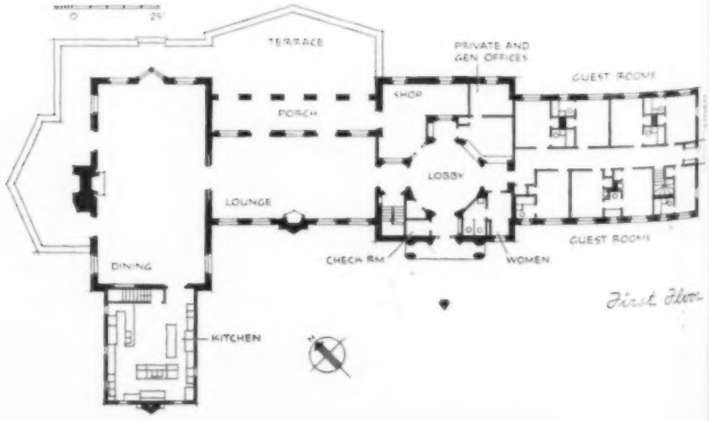
FRONT DOOR. Decoration throughout the hotel makes use of Indian symbols.

Photos by Hedrich-Blessing

Looking into the MAIN LOUNGE from the entrance corridor.

THE LOUNGE: knotty-pine paneling; plank floors.





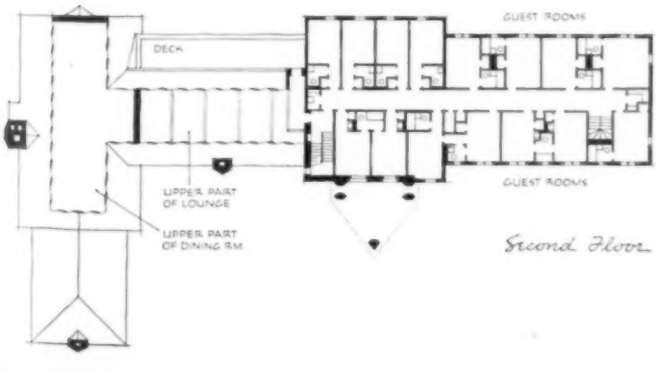
INING ROOM: natural red cedar wainscot; wall decoration by Ericka Mann; linoleum floor, patterned after a Navajo rug. Light urce is an inverted V, formed by a reversed ceiling pitch.

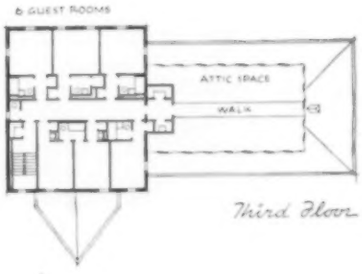
SYLVAN LAKE HOTEL

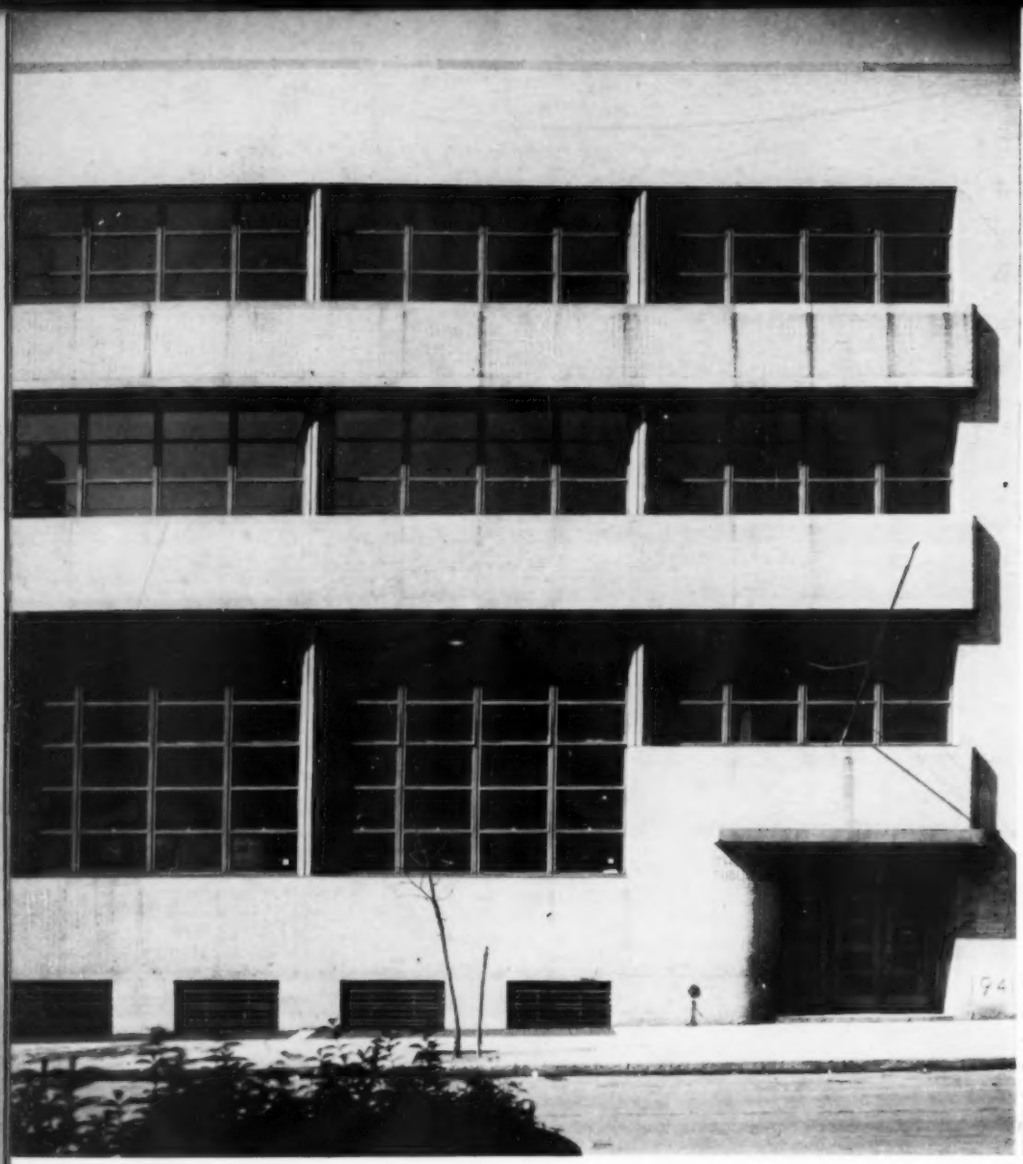
HAROLD SPITZNAGEL, Architect

The lounge and dining room serve many more than are accommodated as overnight guests. Hence, to obtain privacy, these public rooms and their attendant service facilities are completely separated in plan from the guest bedrooms. Indian motifs are used as design elements in both plan and decorative detail —murals by Ericka Mann, applied ceiling decoration by Palmer Eide. It is interesting to know that at the time the building was completed, there was a good deal of local criticism of the job because it was too "non-conforming."

A typical GUEST BEDROOM.

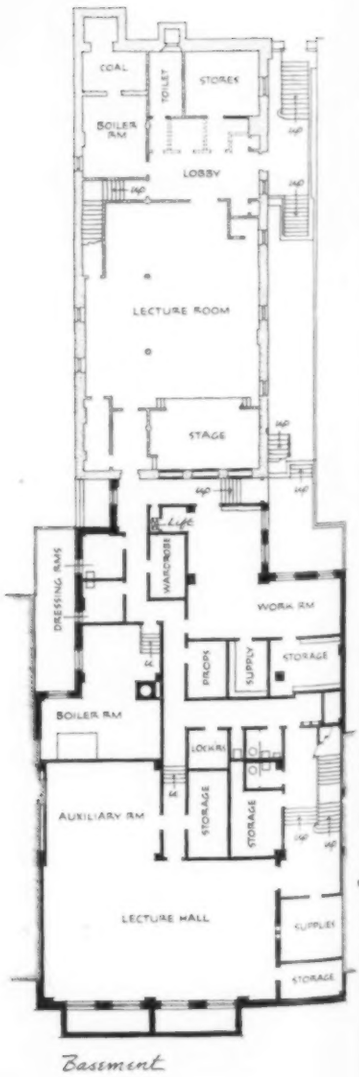






Photos by P. A. Dearborn

Concrete frame; slag paneled floor construction; walls of cinder block, furred inside and brick-surfaced on the exterior.



Basement

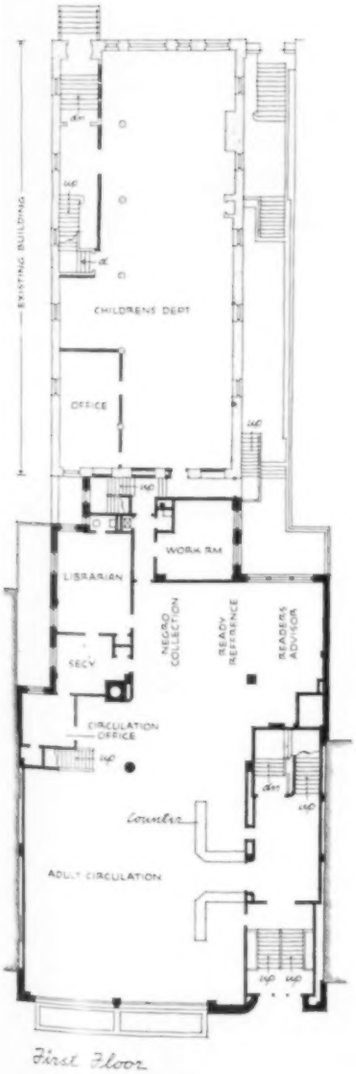
HARLEM BRANCH, N. Y. PUBLIC LIBRARY

LOUIS ALLEN ABRAMSON, Architect

In "Smaller Public Library Buildings" (Pencil Points, July 1941), Talbot Hamlin stated: "However complex its mechanical details, at heart the library is but a study in the relationship of three elements: books, readers and the devices and personnel necessary to make the connection between them." This addition to an existing but inadequate library building at the rear is considerably more. It is the center of the intellectual, cultural, and educational interests of a large community, which happens to be almost entirely Negro. According to the architect: "The exterior was conceived to express the building's function in terms of stark simplicity, to the end that it might allay shyness and dispel reluctance to enter the building."

A wall of light in the adult-circulation room does its full share to assist learning.

FLOOR PLANS. Basement lecture hall for use of community groups, lectures, etc. Here, local talent first performed the play, "Anna Lucasta." Adult and children's departments are separated on the first floor. On the mezzanine are an art gallery for display of work of Negro artists and an acoustically corrected audition room for microphone practice or listening to the rich collections of spirituals and modern music. Reference rooms, etc., on the second floor; Negro department, offices, an apartment, and storage space, on the third.



First Floor

Mezzanine

Second Floor

Looking down from the art-gallery mezzanine to the adult-circulation room. The flooring (as in most major rooms) is asphalt tile.

One of the upper-floor reference rooms.

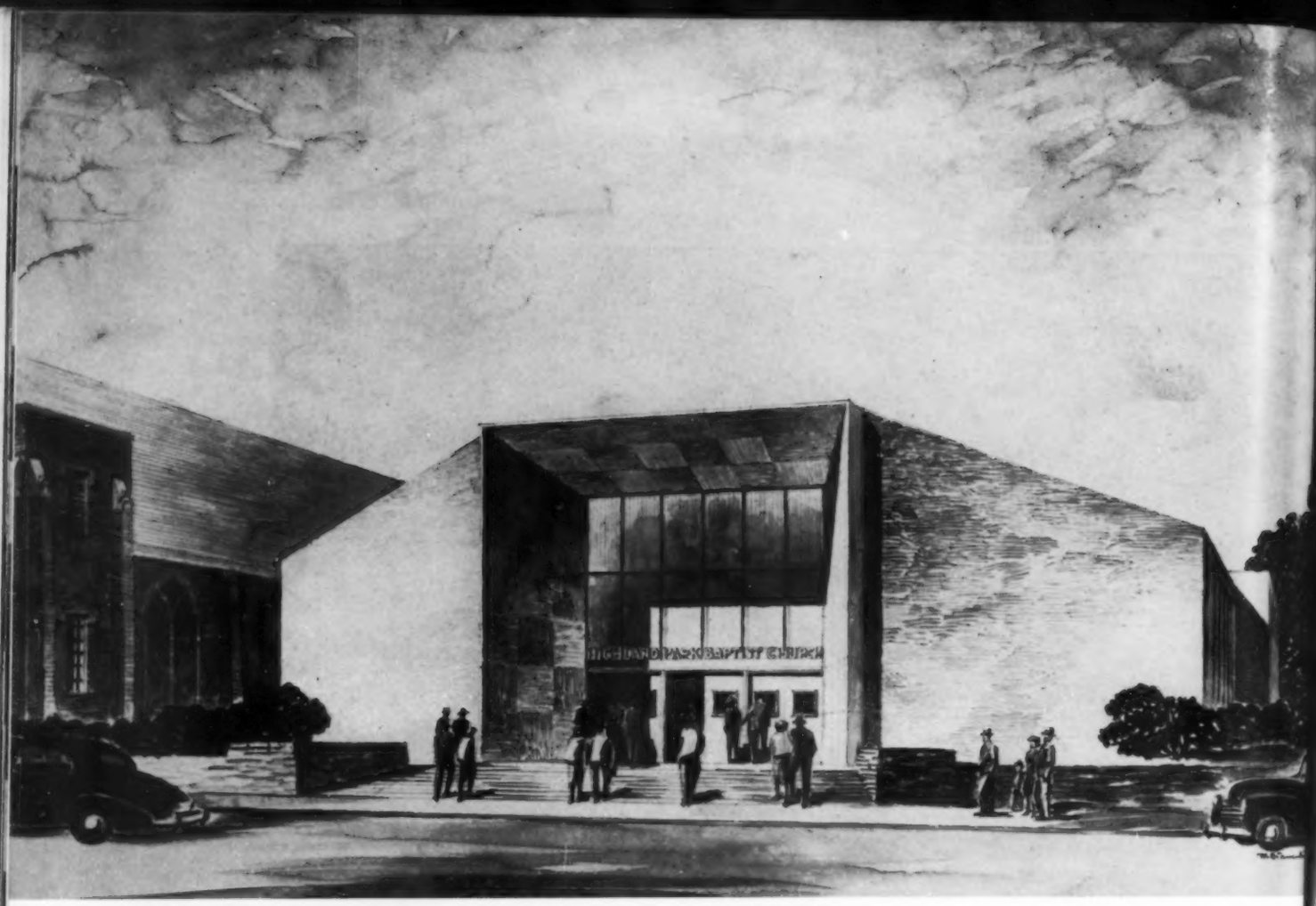
HARLEM BRANCH LIBRARY

LOUIS ALLEN ABRAMSON, Architect

The new portion of the building is for high school and adult activities and includes in its resources the famous Schomburg collection by and about the Negro. The existing building was altered to provide needed facilities for children, even including a fireside for story-telling groups where children may stay while their mothers work. In addition to the usual library services, there are the art gallery, the music collections, and opportunity for seminars for school work or research. Simple, unostentatious treatment and detail make the atmosphere inviting to all.

Toward the rear, from the mezzanine.

Stair to mezzanine; circulation desk in foreground.



PROPOSED DESIGN. Simple, well-integrated—but the clients preferred the solution shown across page.

HIGHLAND PARK BAPTIST CHURCH, CHATTANOOGA, TENN.

GILL & BIANCULLI, Architects

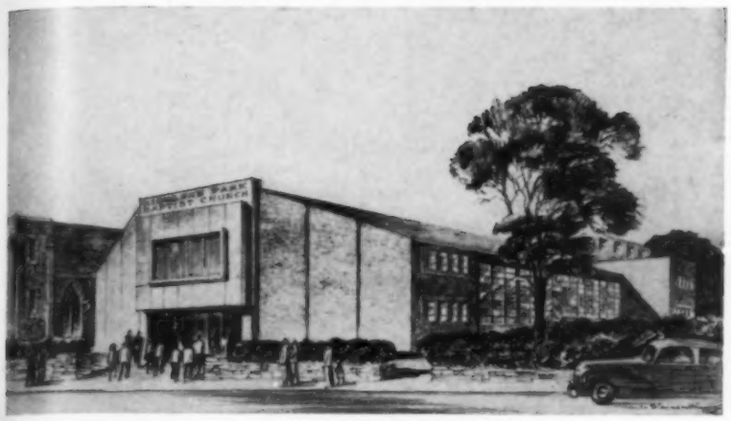
"Our new building is to fulfill the function of a tabernacle without involving expense to provide traditional ecclesiastic features," state the architects for this auditorium addition to two existing, but architecturally unrelated, buildings that now serve the congregation. It has significance for the progressive designer in that it attempts to restate in terms and techniques of today at least the basic FUNCTIONAL needs of one of the oldest of building types.

This new church was objectively designed to produce a house of worship that would be welcoming (emphasis on the great entrance doors) and serve the group's hearing, seeing, and simple ritual needs—a large, unobstructed hall to seat about 1,500 including a choir of 100; classrooms; provision for infants during church time, and broadcasts.

The site rises approximately eleven feet from the sidewalk to the rear of the tabernacle. The auditorium floor slopes toward the pulpit end of the room, terminated by the stepped-up choir. Choir-room facilities are divided so that the choir enters from both sides at an upper level. These rooms are also used as dressing rooms for the baptismal service by immersion.

Above the entrance lobby is a nursery ("cry room"), with double glazing toward the auditorium. Used by mothers and small children, this room is equipped with loudspeakers, served by microphones from the choir and pulpit.

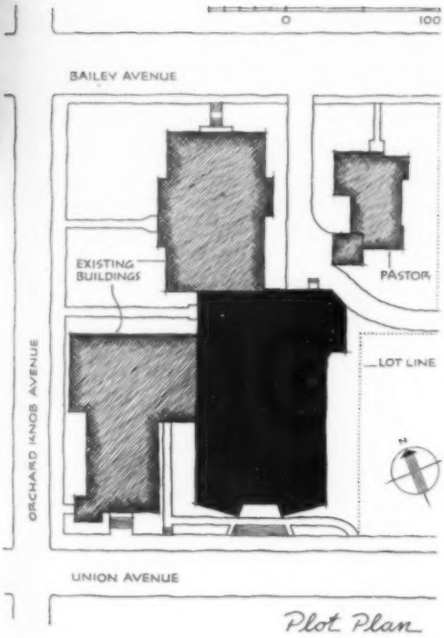
To provide a broad nave with a low ceiling, a rigid-frame structure is specified, with the framing members exposed on the interior. Heat-insulating and sound-absorbing materials are fastened underneath purlins which support plank over which built-up roofing is used. Exterior walls are brick veneer over cinder-block. Heating of the main floor is by radiant heating coils in the floor slab. Upper-level rooms are heated by hot-water convectors. Provision is made for future air conditioning. The main auditorium is lighted by floodlights placed at 8-foot intervals, concealed by a light trough in the frame.



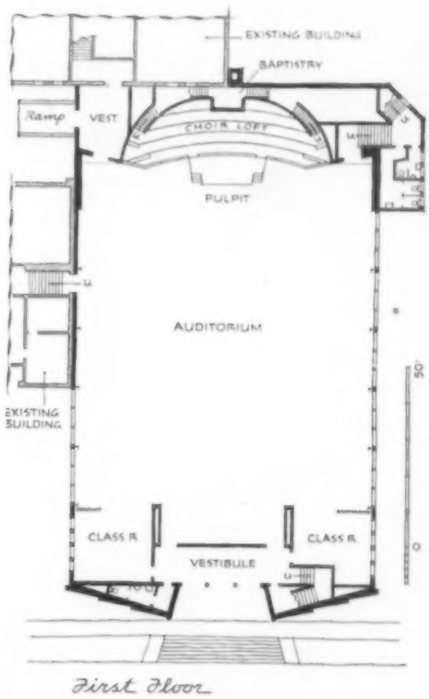
ACCEPTED SCHEME

Second Floor

Above the nursery is a broadcasting-control booth; an adjoining projection booth takes care of moving pictures and lighting effects.

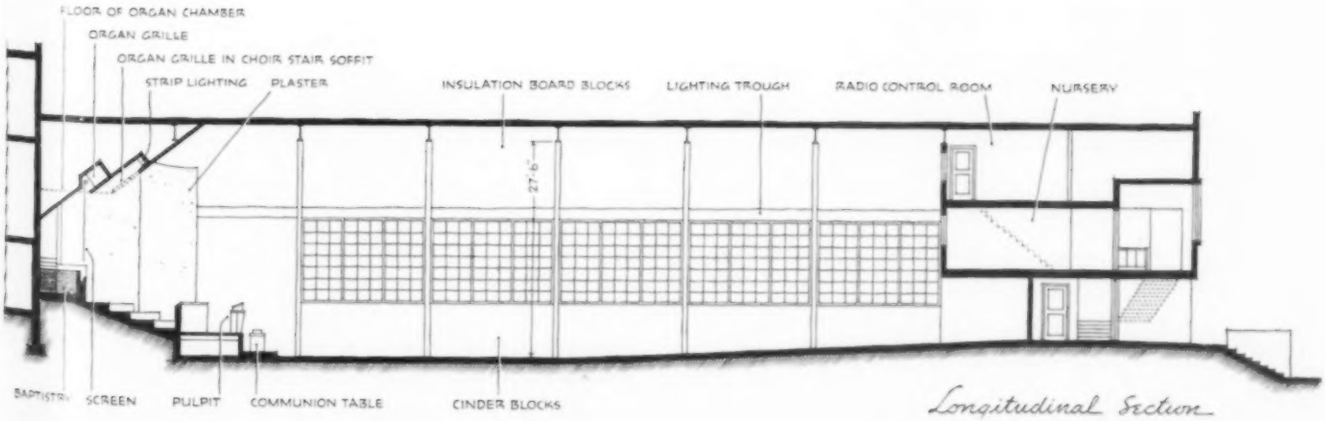


Plot Plan

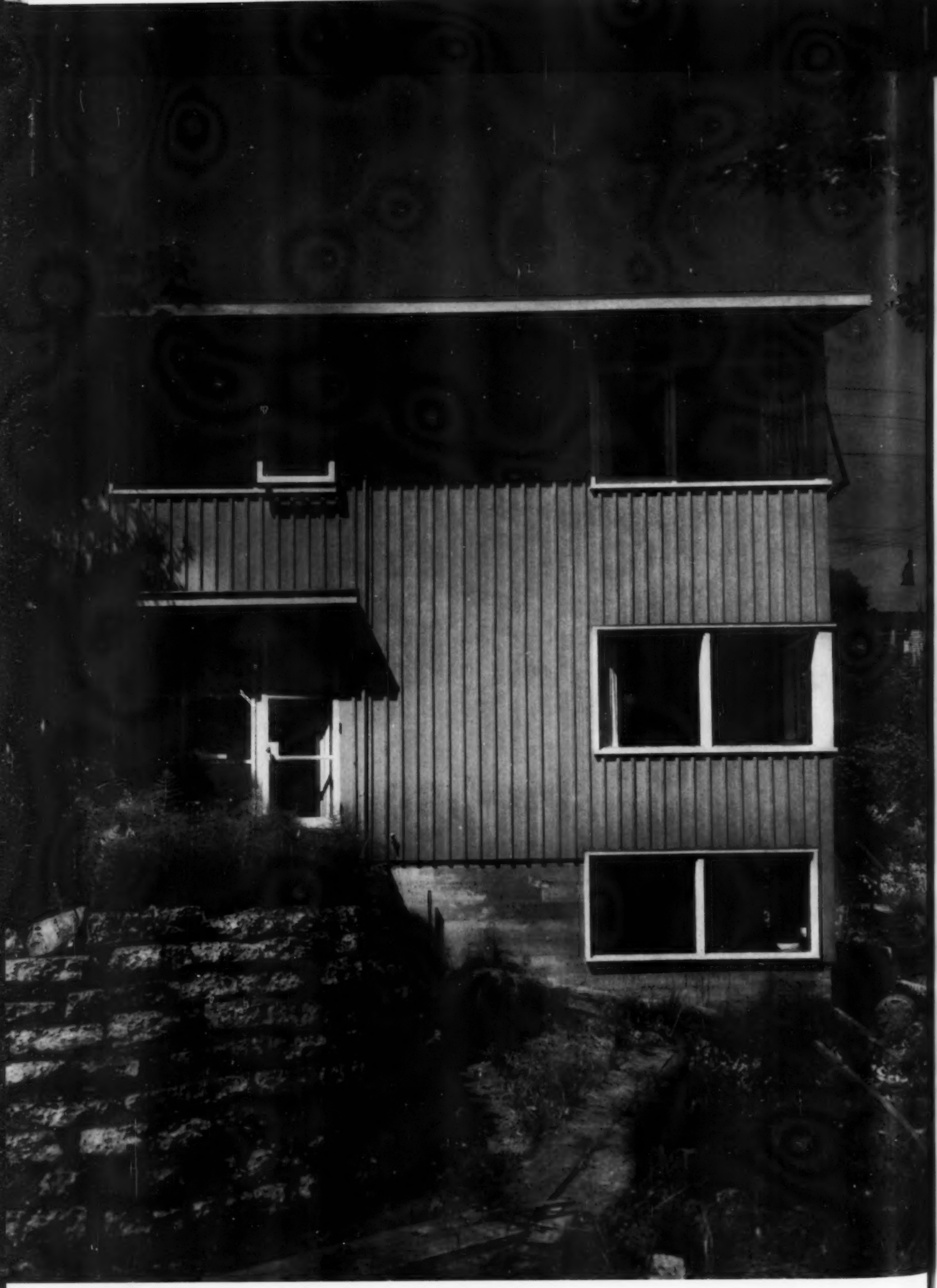


First Floor

Ground-floor classrooms also serve as additional congregation seating space.



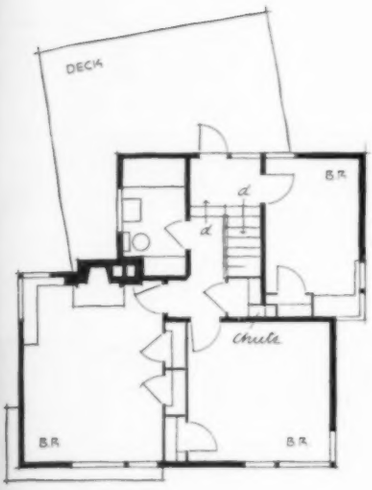
Longitudinal Section



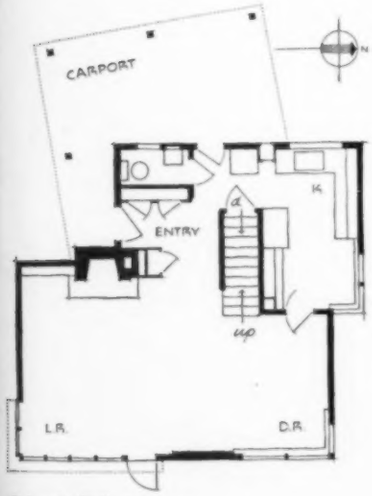
EAST ELEVATION. Red boards and battens; white trim.

HOUSE AT SEATTLE, WASHINGTON

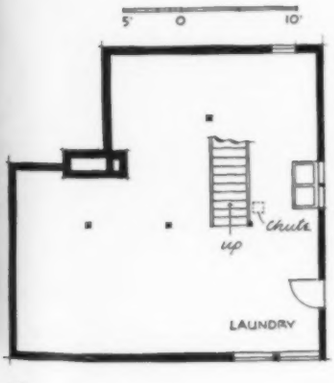
JOHN T. JACOBSEN, Architect



Second floor



First floor



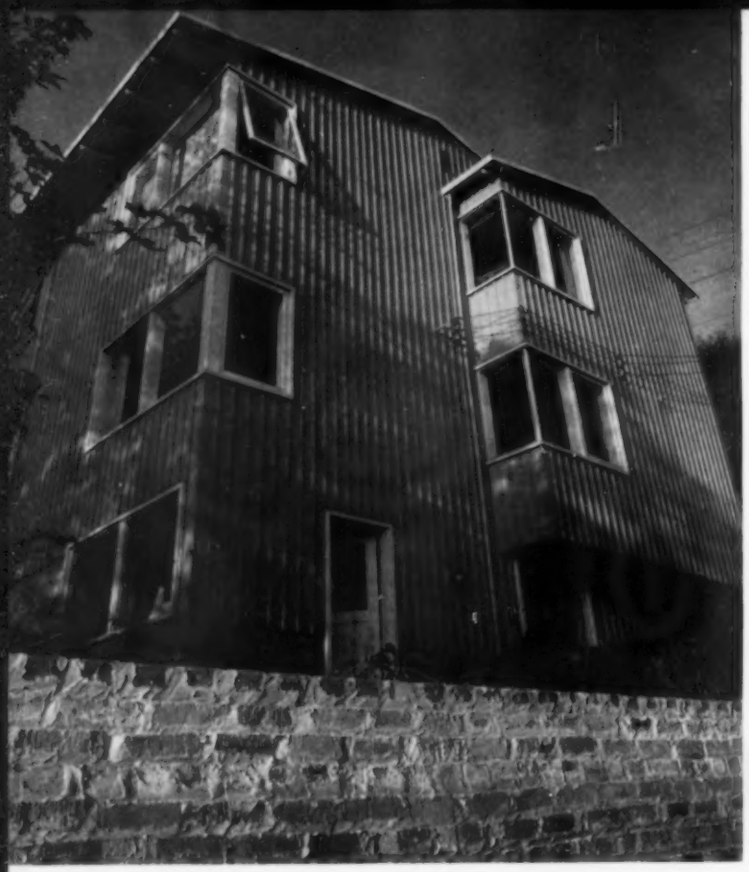
Basement

A hillside home for the northwest, organized on three levels.

Designed for a family with one son and one daughter, this compact, frame house is planned to make the most of the pleasantly wooded slope and view beyond. Even the kitchen (and the bedroom above) are stepped out in plan to provide generous corner windows. Every major room has cross ventilation, and the slope allows for an above-grade basement-laundry at ground level. The house is of frame, with board and batten exterior finish stained barn red; the fir trim is painted white.

So many contemporary houses have been schemed on one floor, with emphasis on the horizontal, that architectural sit-tighters have been quick to argue that this is a limiting requisite of progressive work, even delighting to pigeon-hole this type of treatment as "Modern Style." It is, therefore, particularly agreeable to present a contemporary house that is organized vertically, in both plan and detail. Yet one more instance of the essential freedom from easy, stylistic rules which is implicit in the progressive approach.

Photos by P. A. Dearborn



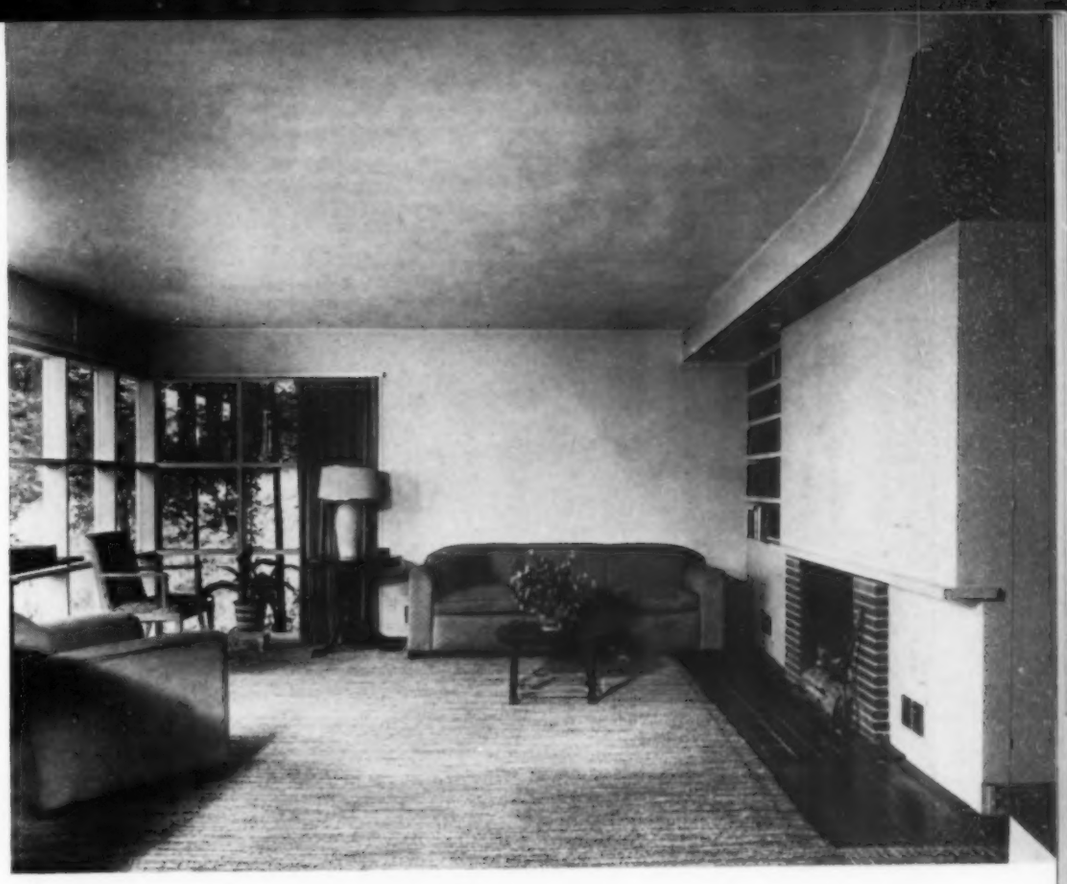
SIDE VIEW of house showing the two levels of corner windows, above the basement floor.

HOUSE AT SEATTLE, WASHINGTON

JOHN T. JACOBSEN, Architect

On the first floor, all rooms except the entry (which is finished in fir plywood) have plaster walls and ceilings and fir trim. Oak is used for flooring in all main rooms. Because of the uphill site, entrance doors (one from the carport, one from the side) are at grade, while the large corner window of the living room looks and opens out on a walled terrace.

The full-height corner window in the living room; the door leads out to a raised terrace and lawn.



LIVING ROOM. The furred down portion of the ceiling continues the lower ceiling line of the entry.

FIREPLACE CORNER, arranged in an out-of-traffic location.

KITCHEN, with open shelving. A windowed dining corner occurs just out of right foreground of picture.

THE SOUTHEAST BEDROOM, with built-in work area organized in the window corner.

HOUSE AT SEATTLE, WASHINGTON

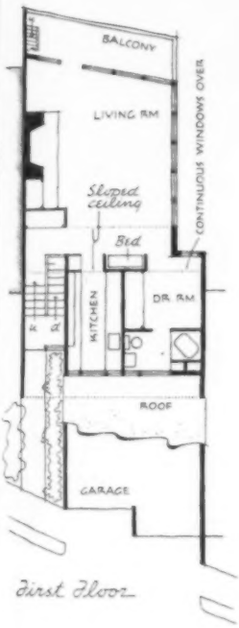
JOHN T. JACOBSEN, Architect

All bedrooms have wood veneer wall finishes, ceilings of fiber-board tile and fir trim. From the upper stair landing, a door opens to a roof deck above the carport. As on the first floor, floors are of oak, except in the bathroom where linoleum is used. Interior decoration throughout the house is by Hope Foote.

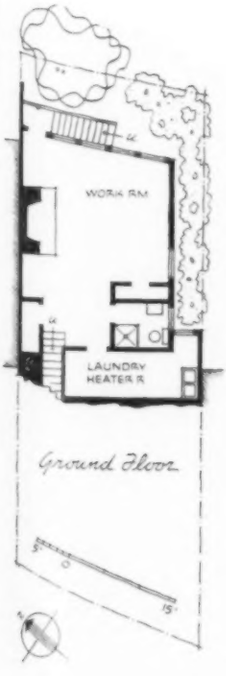
THE UPPER HALL, with door to carport roof deck.

STAIRS up from the living room; entry closets in background.

Photos by Roger Sturtevant



First Floor

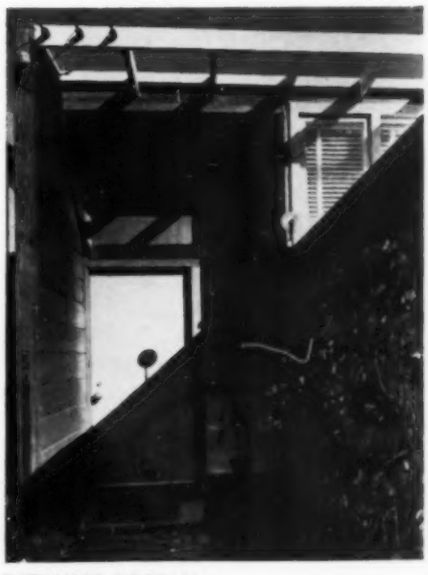


HOUSE AT SAN FRANCISCO, CALIFORNIA

DINWIDDIE AND HILL, Architects

An attempt to obtain a measure of security in an insecure world, this city house is so planned that, while it makes an efficient home for one family, it is readily convertible for two and presumably could be rented or sold at the drop of a hat.

In effect, this house consists of two small apartments, one above the other. The owners now use the whole house, but the conversion could be made simply by addition of a partition with a door on the stair landing. The house turns its back on the street to take advantage of the view to the east; diffusing glass in a clerestory above the kitchen-bath area provides cross light and ventilation.



ENTRANCE DOOR

STAIR HALL

REAR, showing the steep site.

HOUSE AT SAN FRANCISCO

DINWIDDIE AND HILL, Architects

Compact, apartment-like efficiency typifies the planning; the bed folds back into closet space; a small dressing room adjoins the bath; from the rear deck, a ladder-stair leads up to a roof deck. To make the house gee with a limited budget, the owners accepted just a shell to start and have installed finishes and details to suit themselves. A case in point is the breakfast bar in the kitchen. The steep pitch of the site places the main living room high off the ground, which dramatizes the view. At present the downstairs living room is used as a game and work room.

LIVING ROOM, looking toward the entrance stair.

THE DRESSING ROOM serves a dual purpose.

KITCHEN

LIVING ROOM with southeastern windowed walls.

KITCHEN, homemade breakfast bar, and symbolism.

THE LOWER LIVING ROOM, now a work room.

A WORLD CENTER

By LEWIS MUMFORD

Above the confusion that has developed around discussion of permanent quarters for the United Nations, Lewis Mumford's voice rises with an important suggestion. In a provocative letter which we published in April, Mr. Mumford warned us to stop and think about preliminary considerations before rushing into an architectural commission (or even, as PROGRESSIVE ARCHITECTURE has urged, an international competition). Now he gives us the result of his thinking since then in the form of three exciting proposals.

Mr. Mumford recently read a paper at a meeting of the R.I.B.A. amplifying the ideas here briefly presented, on the occasion of his receiving the Howard Memorial Medal.

The committee that was designated to choose a permanent home for the United Nations performed that task before it had formulated a program. On the basis of the directives they received, the committee might have been composed of political Aristotles and technological Leonardos, and they still would not have been able to make a sound selection. At this late date, one can hardly hope that better counsels will prevail in the United Nations, and a more thorough study of the program effected, before any further commitments are made. But this only makes it more imperative that a more searching preliminary study should be begun; for the mistakes that are being made now must be corrected within another generation.

There can be no purely architectural analysis of this problem; it is a matter on which an insight into politics and history must lie at the base of every practical decision. To formulate a program for the United Nations buildings, we must first ask these questions: What is the object of the new organization, and what developments is it likely to undergo during the next generation and the next century?

The answers to these questions cannot be found merely by consulting the preamble to the United Nations charter, for we have to consider this organization, not merely with a view to the pressures and compromises that called it into existence, but with a view to the momentum it carries over from the past and to the potentialities that may or may not be evoked in the future. If the organization were destined to remain abortive, even the worst of the present suggestions would suffice.

Now, in broad terms, the United Nations is the second great effort in our time to give political expression to the processes of a uniting, if not yet united, world. This union of mankind is not the dream of a few scattered idealists wandering in a dazed way between the permanent battlelines of the nations; nor is it the accidental outcome of an effort to fight a global war. Our present efforts at world-wide political cooperation are but the last developments in a process that has been going on, through trade and cultural interchange, even through the spread of conquering armies and widening empires, since man's earliest departure from the safe, limited routine of the tribe.

This unification of mankind has been delayed and halted by the barriers of geography, by the taboos of the tribe, by the impediments of language, by all the institutions that put a premium upon isolation and non-intercourse with the world outside one's parish. Nevertheless, the process itself has steadily gathered momentum, and it now has in its service most of the forces of modern technology. Boston is closer to London today than it was to New York a century and a half ago. Today the voice of a single speaker may reach countless millions by radio half

FOR THE UNITED NATIONS

way round the earth before it can travel, without mechanical aids, to the rear of the hall in which he is speaking. Phrases like "the human race," "mankind," "humanity," have ceased to be purely figures of speech; they now stand for visible and operative realities.

All this is of course a commonplace and a platitude. It was already so visible thirty years ago that a farsighted Dane, Hendrik Christian Andersen, gathered together a group of technical and political collaborators to outline concrete plans for the creation of a World Center of Communication, a city that would be a focus of all our international organizations. In Andersen's elaborate plans, only one element was omitted: the political organization. Today most of those who have thought of the United Nations center have gone to the other extreme; they have thought of it only as a political headquarters, and they have forgotten that in the nature of things, it will be the center of a new age and a new culture.

The basic need in a world center, then, is a provision for further development; it must not merely record and embody the degree of unity we have so far achieved, but open the way for a much fuller accord, a much wider cooperation. Even the charter of the United Nations lays stress on fostering the economic, the educational, the cultural advancement of the peoples of the world; and if the political facilities of the United Nations are to be adequate, the plan must allow full play to all the developing organs of the common life. Some of these international institutions, like the Rockefeller Institute for Medical Research, have long been operating impartially on a world basis; still other institutions must be brought into existence, and a place must be left open for them in our plans. In working out a program for the United Nations we must be bold enough to make it one of the great focal points in a world community. To think in smaller terms is to plan for defeat and to court frustration.

These general considerations dispose, I believe, of the suggestion that the headquarters of the United Nations be small, inconspicuous, secluded, either lost in the urban mass of some great metropolitan area, or removed, for the sake of extra parking space, recreation grounds, and housing quarters to some suburban site wtihin easy automobile access of a great city—as if it were an insurance company or a popular periodical. The future, if not the present, requirements for a world organization prescribe something more than the building of a modest Trading Estate, as the British would call it, for politics. The future demands nothing less, in fact, than the building of a complete city.

As soon as we reach this conclusion, our choice of sites automatically becomes limited, for a world city cannot be conjured up overnight; indeed the most favorable sites for world cities have already been preempted and built upon by great metropolises that have long been in existence. Such cities belong only partly to their immediate region and country; they have become big, they have become powerful, precisely because they have reached out for goods and men throughout the planet. In that fashion, they have even become centers for higher education and research. Partly because of the diversity of their inhabitants and the presence of considerable foreign groups, there is a perpetual interchange of ideas and cultural forms here which quickens all the intellectual processes; in London, Paris, New York, Rome, Berlin, Buenos Aires, a real society of nations tended to grow up. It would be a major sociological blunder to overlook the importance of this fact.

Admittedly, the growth of great world cities during the past century has not been a healthy one—far from it. These formless metropolises were the victims of giantism, imposed upon them by their false ambitions and their perverse economic activities; the incoherent planning, the depressed housing, the contrasts of extreme luxury and extreme poverty, the purposeless materialism of the whole routine were the expressions of a society that was out of balance. While imperialism furthered the processes of world organization on the economic side, its very success resulted in political claims and clashes that under-

mined even the economic benefits that were achieved. On one hand, the world city was La Ville Lumiere; on the other, the City of Dreadful Night. At the center, beauty, order, wealth, civic vitality; on the periphery, or rather just behind the imperial facade, poverty and corruption, misery and blight.

Today, by one process or another, the overgrown metropolises of the imperial age are on the way out. They will either be liquidated by a benign intelligence, as the planners of Greater London and Manchester propose, or they will be obliterated by the diabolical weapons science has now placed in man's too apelike hands. If we would avoid this second terminus, so near, so threatening, that few even dare look the danger in the face, still less take action against it, we shall have to transform the United Nations into a true World Government. Unconditional cooperation has become the price of man's survival. Such a world organization must bring into existence a new kind of world city, a city that will utilize all the present organs and functions of the world community and turn them to the benefit of mankind as a whole. There is no cheaper and easier way out.

Our problem, then, is not to look for an entirely new site for the United Nations. We must rather choose one of the existing world capitals and make it over in such a fashion that it will both serve and symbolize the new order that lies before us. In the very heart of the dying world, we must make visible the human plans and purposes that will save mankind from the agents of disintegration that now threaten it. If we are not to sink rapidly into a Dark Age, we must prove by our plans and our actions that the Children of Light, far better than the Children of Darkness, have the courage to plan ahead for the next thousand years.

What does the present analysis lead to? Does it imply that it has become the duty of the United Nations to build a separate world capital comparable in population and area to London or Moscow? No, the city of limitless population and expanding territory, spreading in every direction, is a product of the very forces we must now subject to our control. What I am suggesting is something much more modest, yet more audacious, than the creation of an independent metropolis, more closely linked with history, and yet a far bolder essay into the future mankind must create.

First: I propose that the new city be created by a large-scale process of slum clearance, removal, and rebuilding, financed wholly by the United Nations, *within* an existing world metropolis.

Second: I propose that this new center be projected as a balanced urban community, definitely limited in population and area, with all its land permanently owned and controlled by the United Nations, on the lines Howard originally laid down for the creation of the garden city.

Third: I propose that the new world center be within the old metropolis but not of it; on the contrary, that in layout, in design, and in the actual processes of construction, it become a bold demonstration of the very methods of cooperation we must now apply throughout the planet to preserve order, to keep the peace, to establish a decent minimum of living, and to make the maximum human use of the energies man now commands.

At the start, a city so conceived would have the benefit of the colossal resources that the existing world cities already possess; but within its own area the United Nations would set up a new pattern of life. He who entered the new community would have a foretaste of all that the arts and sciences can produce for the humanization of man in society. To the extent that world cooperation prospered, the changes first instituted in a single center would spread to other urban communities.

What may seem the most radical part of this proposal for a new world center, namely, the placing of the new city close to the very heart of the existing world city, is on the contrary the step for which a striking historic precedent actually exists. Politically and legally, as well as physically, we have an example of this arrangement in the relation of Vatican City to the municipality of Rome, a universal institution functioning alongside a purely local and national one. In planning for a world center along garden city lines, we would provide for a better-balanced community; but the principle remains the same.

As for the process of land acquisition, replanning, and building, all that comes under the familiar head of slum clearance and reconstruction. In choosing the first of the world centers to be built, the final decision—after geographic, climatic, and social data have been fully appraised—would probably be made on the basis of the degree of interest shown by competing municipalities. Very possibly a blasted city like Berlin or Leningrad might offer opportunities and incentives that New York, clinging to its costly obsolescence, would not provide. Even in New York or Paris, however, it would not be difficult to find plenty of land, on the scale of two to three thousand acres, whose gradual clearance for a world center would immensely revitalize the whole city.

Where is the money for such a gigantic enterprise to come from? Can the impoverished and exhausted peoples of the world afford such a large-scale expenditure, not merely to house the organs of the world community with their personnel, but to rehouse the local population that is displaced? In war, we do not ask ourselves such questions, and unless we are prepared to cooperate and sacrifice for peace as unconditionally as we do for war, the age of the atomic bomb will mar the end of our whole civilization, along with the science that produced it.

If we are not to make a mockery of modern science and technology, we must now create an urban environment capable of sustaining the political and economic and social processes essential to man's further development. The planning of a new world center gives us such an opportunity.

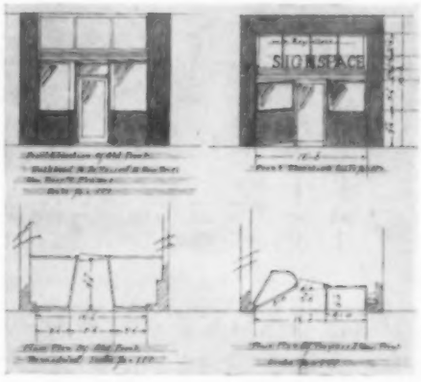
(Details on following page)

Ezra Stoller

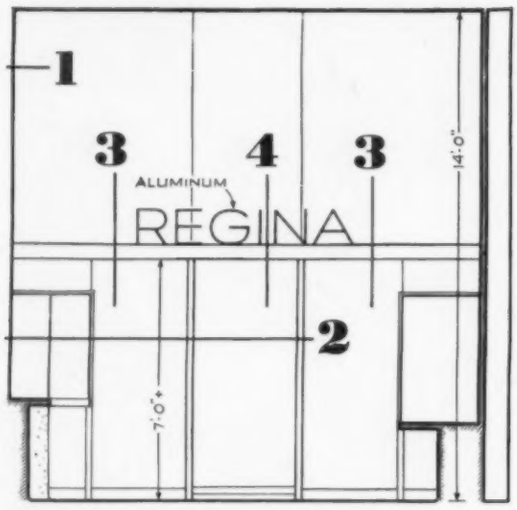
INEXPENSIVE DESIGN FOR SPECIALTY SHOP

NEW ROCHELLE, NEW YORK — **MARIE FROMMER, Architect**

The tenant of this narrow, deep store (14 ft wide, 14 ft high) first went to a fixture contractor, intending to eliminate "unnecessary" fees. For his budget, he was assured he could get nothing better than is shown in the small sketch at right. Dissatisfied, he approached Miss Frommer, who produced for him the shop pictured above for the same total budget, which was approximately $7,000. Economies achieved by such means as substituting black ceramic tile (laid up in squares 2½ x 2½ ft with gray cement joints between squares) for terrazzo and dividing strips, made possible such essentials as the hung ceiling, painted midnight blue to help concentrate attention on the merchandise. No exterior sign space was available; name appears in aluminum letters at rear of 10-ft deep vestibule.

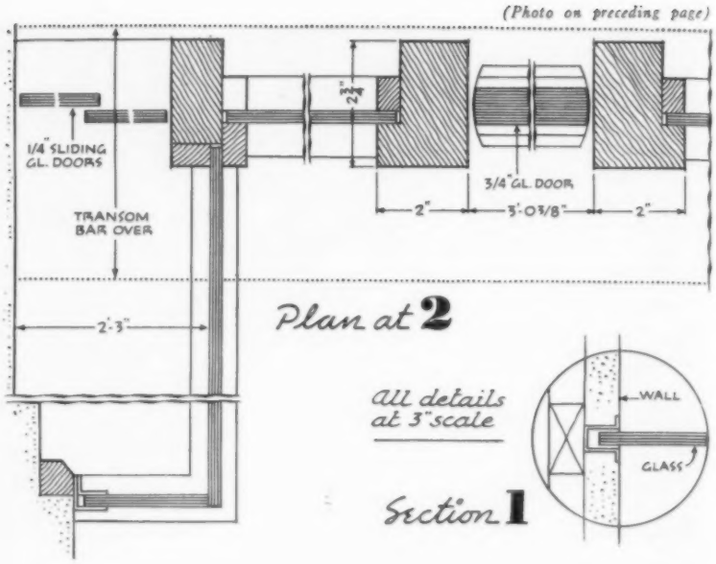


SELECTED DETAILS



Section 3/16" SCALE

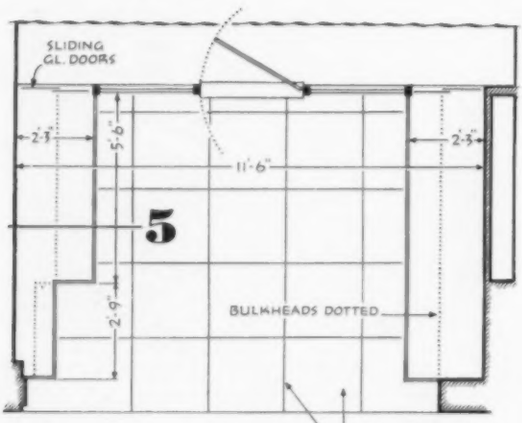
(Photo on preceding page)



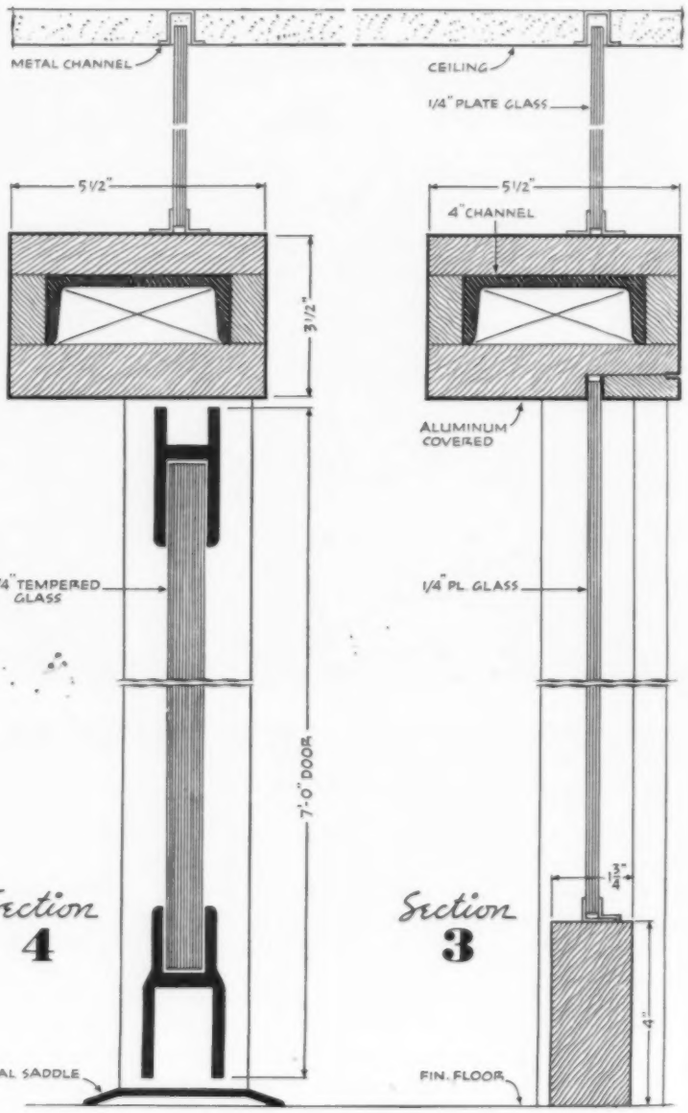
Plan at 2

All details at 3" scale

Section 1



Plan 3/16" SCALE



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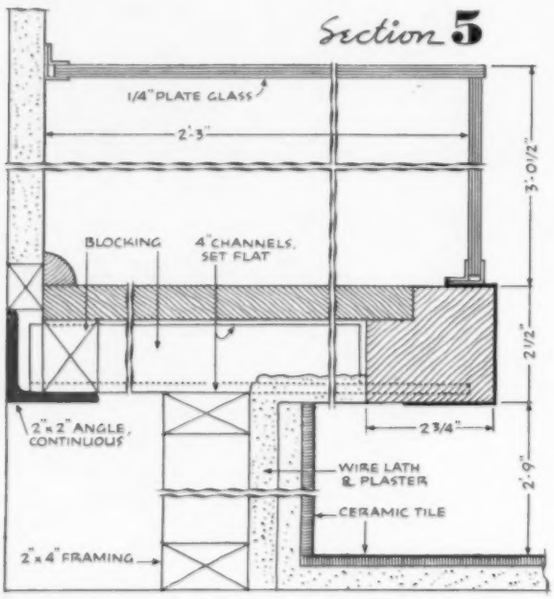


SPECIALTY SHOP

NEW ROCHELLE, N. Y.

MARIE FROMMER

Architect

(Details on following page)

Ezra Stoller

CASES, SPECIALTY SHOP

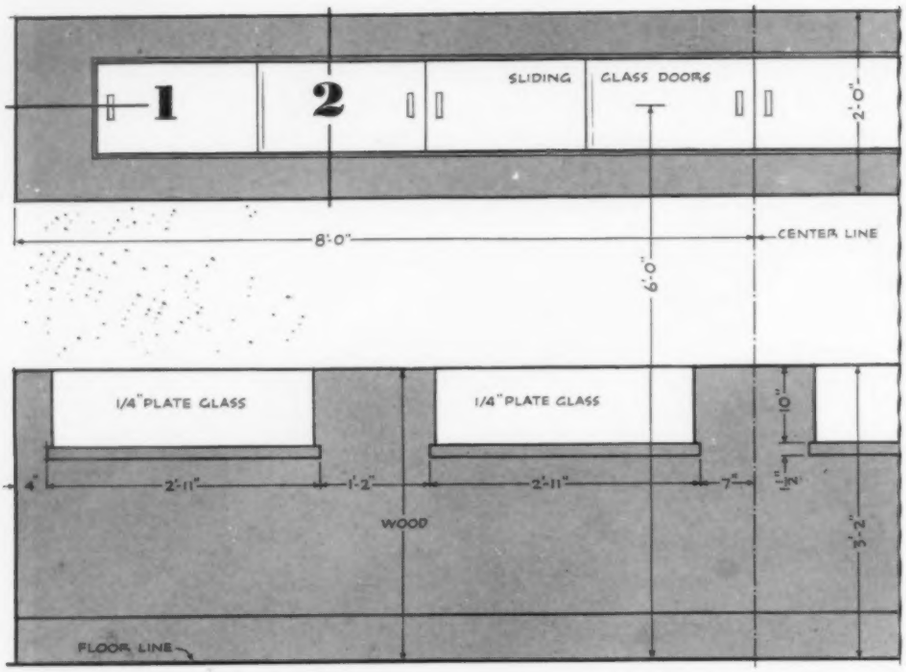
NEW ROCHELLE, N. Y.

MARIE FROMMER
Architect

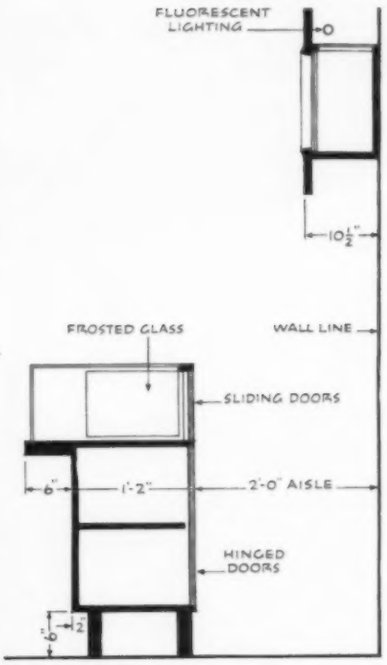
Ceiling is dark blue, walls light gray, lighting (mostly fluorescent) is built-in. Exposed wood is oak with rubbed gray finish except wall fixture shown above, which is yellow, repeating the narrow yellow stripe set in the black linoleum floor. All fixtures, including those in the lobby, were proportioned to display a particular type of merchandise (jewelry, handbags, luggage) to fullest advantage.

SELECTED DETAILS

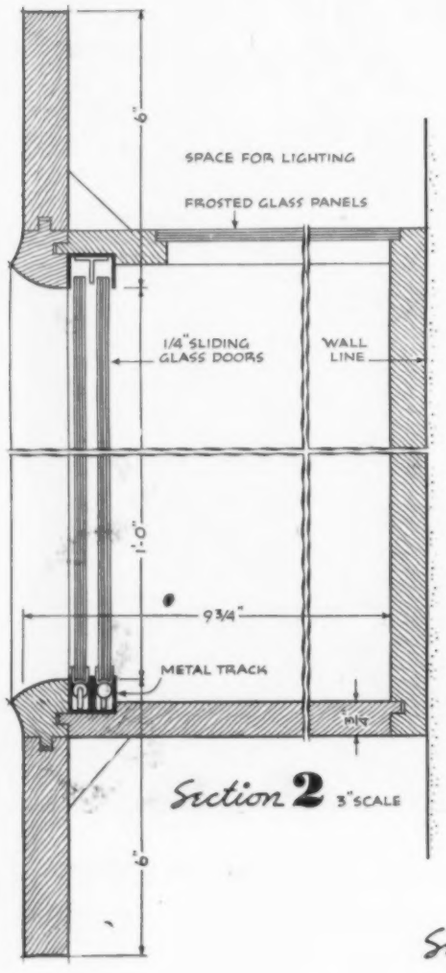
(Photo on preceding page)



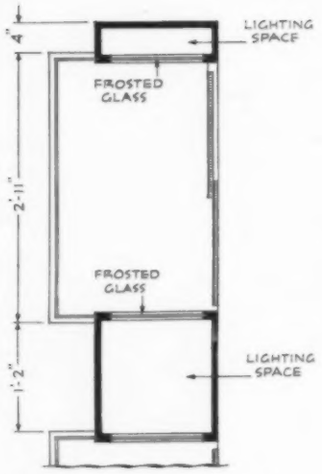
Half Elevation 1/2" SCALE



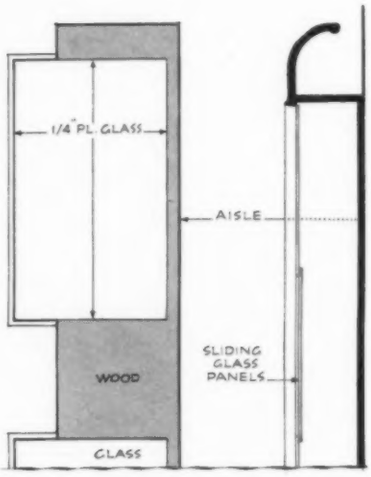
Section 1/2" SCALE



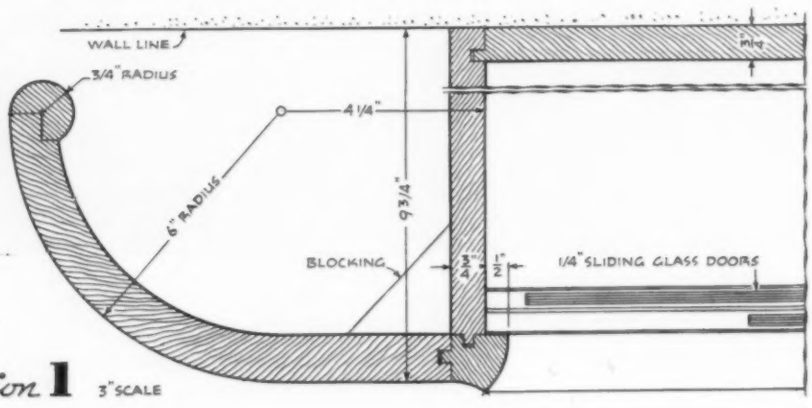
Section **2** 3" SCALE



Plan thru Counter



Plan above Counter



Section **1** 3" SCALE

SPECIALTY SHOP

NEW ROCHELLE, N. Y.

MARIE FROMMER
Architect

THEORY AND BASIC PRINCIPLES OF INSULATION

By PAUL D. CLOSE, formerly Technical Secretary, American Society of Heating and Ventilating Engineers, and Insulation Board Institute; author of a condensed manual on the insulation of dwellings and other buildings, to be published shortly by Reinhold Publishing Corp.

What are the characteristics of an insulation that cause it to retard heat flow and thereby save fuel and perform other valuable functions? The complete answer to this question involves an understanding of the nature of heat and of the mechanics of heat transfer through walls.

MOLECULAR THEORY OF HEAT

However transcendental the idea may appear to the average individual, heat is molecular motion or vibration. The modern concept of heat is that all substances are composed of minute particles or molecules which are in a constant state of motion. The temperature of a substance is due to the rate of motion or vibration of the molecules composing it. Energy the molecules possess due to this motion is called kinetic energy. The temperature of a substance is therefore the measure of the average kinetic energy of the molecules composing it. Adding heat energy to a substance either increases the temperature or increases the energy of the position of the molecules, as when melting or bailing occurs. For example, if heat is added to a piece of ice having a temperature of say 0°F, the kinetic energy or motion of the molecules increases. When enough heat has been added to raise the temperature of the ice to 32F, the ice begins to melt or change its state. Thus the molecules of ice have reached the maximum speed possible in their relatively fixed positions and additional heat is not causing an increase in their speed, but a change in their position, and hence a change in state.

Unit of Heat. The English unit of heat in common engineering use is of course the *British Thermal Unit*, familiarly known as the *Btu*, which is defined as the amount of heat energy necessary to raise the temperature of one pound of water from 63F to 64F. The metric system heat unit is the *calorie*, and is the amount of heat energy necessary to raise the temperature of one gram of water from 15C to 16C.

Heat Content of Fuels. When a quantity of fuel is burned in the air, a definite number of heat units are given off. The heat content or calorific value of fuel is the number of Btu evolved when one pound of fuel is completely burned in air or oxygen.

METHODS OF HEAT TRANSFER

Heat always seeks the lowest temperature level. In other words, the transfer of heat always takes place, or heat is said to flow or pass, from a warmer to a colder body. Thus when fuel is burned in a heating furnace the heat generated is dissipated to the outside by transmission through walls, roof, and glass areas, and by air leakage through cracks, crevices, and open doors and windows. Heat transfer takes place in three ways, (1) by conduction, (2) by convection, and (3) by radiation.

Heat Transfer by Conduction. Conduction is transfer of heat through matter unaccompanied by any obvious motion of the matter. If an iron bar is thrust into an open fire, the molecules at the end of the bar in the fire will immediately speed up. These in turn will bombard adjoining molecules, causing them to speed up until all the molecules in the bar are vibrating more rapidly. This is transfer of heat by conduction.

Metals are good conductors and have the highest *conductivity*—or rate of heat transfer by conduction—of any materials. Steel, for example, is roughly 400 times as good a conductor as soft woods. Silver is about seven times as good a conductor as steel.

Conduction Formula. The amount of heat transferred by conduction is directly proportional to temperature difference ($\triangle t$), area (A), and time and rate of heat transfer or conductivity (k), and inversely proportional to thickness, (x). If the time is one hour, the amount of heat transferred by conduction is given by the following formula:

$$q_c = \frac{\triangle t A k}{x} \qquad (1)$$

Moisture increases the rate of conduction or conductivity (k) because water, which fills the voids, conducts heat more rapidly than the air it displaces. The rate of heat transfer through most homogeneous materials also increases with the mean temperature.

Heat Transfer by Convection. Convection is transfer of heat by moving matter, as for example the heated air rising from a warm air register. When air is heated it expands and thus becomes lighter than the surrounding air. This heated air rises and heavier cold air replaces it nearer the source of heat. This process is repeated and the convection currents thus set up continually transfer heat. Such currents can actually be observed in the case of smoke from a chimney and "heat waves" rising from a pavement on a hot summer day.

Heat Transfer by Radiation. Radiation is transfer of heat through space without the presence of matter. Heat is received from the sun by the process of radiation. While heat is being transmitted in this way it is *radiant energy;* it is not heat until it is absorbed by some surface or object. Most of the heat from a fireplace or a radiator is transmitted by radiation. Every wall surface is continually giving off heat by radiation to colder wall surfaces and other objects it can "see," and likewise every surface is receiving heat by the process of radiation from warmer surfaces and objects. Thus there is a continual interchange of radiant heat energy between surfaces and objects of different temperatures.

Radiation Transfer Across Air Spaces. Transfer of heat by

radiation across an air space is dependent upon the temperature of the two boundary surfaces and their respective *emissivities*. The emissivity of a surface is merely a factor indicating the relative amount of radiation absorbed by a surface as compared to an absolutely black body under the same conditions. A black body or surface absorbs all the radiation which strikes it and reflects or transmits none, and therefore has an emissivity of unity (1.0). All other surfaces have emissivities of less than 1.0.

Most non-metals have high emissivities (in the neighborhood of 0.9) while metals, when not oxidized, have very low emissivities—around 0.05. Aluminum foil has an emissivity of about 0.05. Aluminum and bronze paints, a combination of metals and non-metallic vehicle, have emissivities about half-way between the two values stated.

Radiant heat waves coming in contact with an opaque surface are either absorbed or reflected. The absorbed and reflected radiation together must equal the radiation striking the surface. If **a** = absorptivity, **e** = emissivity, and **r** = reflectivity of a surface, then $a = e = 1 - r$

Stefan-Boltzmann Radiation Formula. The Stefan-Boltzmann formula for heat transfer by radiation between two parallel surfaces of the same area is as follows:

$$q_r = 0.172eA\left[\left(\frac{T_1}{100}\right)^4 - \left(\frac{T_2}{100}\right)^4\right] \qquad (2)$$

where

q_r = heat transferred by radiation, Btu per hour

e = effective emissivity $= \dfrac{1}{\dfrac{1}{e_1} + \dfrac{1}{e_2} - 1}$

e_1 = emissivity of radiating surface

e_2 = absorptivity of receiving surface

A = area of surface, square feet

T_1 = absolute temperature of radiating surface $= t_1 + 460$ (t_1 = temperature of radiating surface)

T_2 = absolute temperature of receiving surface $= t_2 + 460$ (t_2 = temperature of receiving surface)

Example: Calculate heat transfer by radiation across an air space if emissivities of the two surfaces are both 0.85, area is 100 sq ft, and radiating and receiving surface temperatures are 100F and 50F, respectively.

Solution: $e = \dfrac{1}{\dfrac{1}{.85} + \dfrac{1}{.85} - 1} = 0.74$

$T_1 = 100 + 460 = 560$

$T_2 = 50 + 460 = 510$

$A = 100$

Substituting in formula (2):

$$q_r = 0.172 \times 0.74 \times 100\left[\left(\frac{560}{100}\right)^4 - \left(\frac{510}{100}\right)^4\right]$$

$= 0.172 \times 0.74 \times 100 \times 309$

$= 3940$ Btu per hour

Heat Transfer Through Building Materials and Construction. Transfer of heat through building materials is almost entirely by conduction, except that in the case of fluffy or highly attenuated substances there may be some convection. Transfer of heat through air spaces, and from or to wall surfaces, involves all three processes, although the percentage of heat transferred by conduction through air is comparatively small. Therefore, passage of heat through a wall from air to air involves all three methods of heat transfer.

WHY IS AN INSULATION?

Consider now the characteristics of an insulation which cause it to retard heat flow, save fuel, and provide increased comfort. The subject must be considered according to the type of insulation, that is, (1) the reflective which depends solely on surface characteristics, or (2) other types such as blankets, batts, board, and fill, which depend on thickness and may be termed mass insulations. The principles are entirely different in the two cases. Consider the so-called mass insulations first.

Principle of Mass Insulations. Heavy, dense materials such as concrete, stone, and steel are not classified as insulations because they have a high rate of heat conduction, whereas lightweight, porous substances which have a low rate of heat conduction are classified as insulating materials. If, however, a heavy, dense material (such as rock) is subdivided or fiberized (rock wool), the rate of heat conduction will be greatly decreased. This low rate of heat flow (which means a high degree of heat resistance) is due to the millions of air cells or voids resulting from the degree of subdivision of the material. Mass insulations therefore retard heat flow simply because they have a low rate of heat transfer by conduction due to the degree of subdivision, and permit little or no heat transfer by convection or radiation. Some materials have what is called an "optimum" density, that is, a density which will result in the minimum rate of heat flow.

The molecular theory of heat explains why porous, lightweight insulating materials containing millions of air voids have a lower rate of heat flow than hard, dense materials. If the molecules of a material are packed together solidly (as in the case of steel or concrete) any vibration or motion of the molecules is readily communicated from one part of the substance to the other and thus the material has a high rate of heat transfer. With lighter, more porous materials, any motion of molecules due to heat applied to one side is not readily transmitted through to the other side by impact with adjoining molecules and the material therefore has a low rate of heat transfer.

Principle of Reflective Insulations. Reflective materials reduce the rate of heat transfer simply by reducing the amount of heat transferred by radiation across the air space. At ordinary temperatures, from 55% to 70% of the heat may be transferred across an air space by radiation. By replacing one or both of the surfaces enclosing the air space with a reflective material such as bright aluminum, heat transfer across the air space would be reduced about 95%. These percentages refer only to heat flow across the air space and not to heat flow through the entire construction, which is considerably less.

VALUE OF AIR SPACES

Air spaces such as exist between studs of an ordinary frame wall, in hollow tile, and in the cores of cement blocks are sometimes referred to as "dead" air spaces, implying that air in them is motionless, whereas in fact there is always considerable air motion due to convection when a difference in temperature exists between the sides of the space. An air space of sufficient size does have some heat-resistance value, though much less than is generally supposed.

The actual value of an air space depends on many factors including temperature, width and orientation, direction of heat flow, and particularly the character of the enclosing surfaces. For vertical surfaces bounded by ordinary materials, heat resistance increases with increase in width of air space up to about ¾" or 1", but there is no appreciable increase in heat resistance with increases beyond this width. Therefore, a one-foot space is little or no better than a 1" air space.

A *vertical* wall-thick (3⅝") air space bounded by ordinary building materials has an insulating value equivalent to about ¼" of efficient insulation. If one surface of the air space is replaced by a reflective material (having an emissivity of 0.05), its insulating value is more than doubled—the net increase is equal to about ⅓" of efficient insulation.*

* The conductance generally used for computing heat loss coefficients for air spaces bounded by ordinary materials is 1.10 and that for air spaces bounded by reflective surfaces such as bright aluminum foil is 0.46. The resistances are $\frac{1}{1.10} = 0.91$ and $\frac{1}{0.46} = 2.17$ respectively. An air space bounded by ordinary materials is therefore equivalent to about ¾" of an insulation having a conductivity of 0.27. The increase in resistance due to the aluminum foil, using these values, is 2.17-0.91 or 1.26. This is equivalent to 0.34" of insulation having a conductivity of 0.27.

METHODS OF INSULATING

It will be apparent that there are several possible methods of reducing heat flow by the use of insulating materials:

1. **By replacing structural materials** having a high rate of heat conduction with materials having a low rate such as the use of insulating board sheathing and lath in place of non-insulating sheathing and lath.

2. **By adding insulating materials** to the construction, such as by partially or completely filling air spaces. Blankets, fills, and batts are commonly used for this purpose. An insulating material generally has substantially greater heat resistance than the air space it fills.

3. **By replacing one or both surfaces** of an air space with a material of low emissivity, that is, with a reflective insulation. Reflective insulation may also be installed in such a manner as to divide the air space into two or more air spaces.

WHERE TO INSULATE

While special considerations may alter the situation, in general, the following surfaces should be insulated against heat loss (or gain):

1. **Walls.** All outside walls and walls adjacent to such unheated spaces as enclosed porches, unheated garages, etc.

2. **Ceilings.** Where the roof is pitched and the attic unheated, the ceiling should be insulated—a more effective installation, under these conditions, than roof insulation. If the roof is pitched and the attic occupied and heated, insulation should be applied as a part of the roof structure, either as a ceiling on the underside of the rafters (using structural insulating board interior finish, for example), or between the rafters (using batts, blanket, or fill insulation), or both. Roof insulation may also be applied over the rafters under the sheathing, using insulating board.

3. **Roofs.** Where the roof is flat and the ceiling approximately parallel with the roof, either the roof or the ceiling may be insulated.

4. **Floors.** Floors over unheated crawl spaces should be insulated. Floors over basements need not be insulated, except in unusual circumstances, such as where the basement is subjected to temperatures approaching outside temperatures, or where the basement is exceptionally warm due to heat from a heating plant or other source.

Insulation of concrete slabs laid on the ground has limited value because the rate of heat transfer into the ground is comparatively low. However, edge insulation should be used around the concrete slab, between the slab and the walls or foundation, to isolate it.

HEAT LOSS COEFFICIENTS

Building materials, including insulations, are evaluated according to the rate at which heat will pass through them; the lower the rate of heat flow, the greater the heat-resistance of the material. Compound structures such as walls and roofs, consisting in most instances of two or more materials, are similarly rated. These units of measure of the rate of heat loss are known as heat loss coefficients.

COEFFICIENTS DEFINED

The various heat loss coefficients used for building materials and insulations, air spaces, surfaces, and compound structures, and the symbols used, are as follows:

k = thermal **conductivity**, or the amount of heat (Btu) transmitted in one hour through one square foot of a homogeneous material *one inch thick* for a difference in temperature of one degree Fahrenheit *between the two surfaces.*

C = thermal **conductance**, or the amount of heat (Btu) transmitted in one hour through one square foot of a nonhomogeneous material or a combination of materials, for the thickness or type under consideration for a difference in temperature of one degree Fahrenheit between the two surfaces of the material.

f = film or **surface conductance**, or the amount of heat (Btu) transmitted from a surface to the air surrounding it, or vice versa, in one hour, per square foot of surface, for a difference in temperature of one degree Fahrenheit between the surface and the surrounding air. To differentiate between inside and outside surfaces, f_i is used to designate the inside film or surface conductance, f_o the outside.

a = thermal **conductance of an air space**, or the amount of heat (Btu) transmitted in one hour through an area of one square foot of an air space for a temperature difference of one degree Fahrenheit.

U = over-all **coefficient of heat transmission**, or the amount of heat (Btu) transmitted in one hour, per square foot of wall, floor, roof, or ceiling, for a difference in temperature of one degree Fahrenheit between the air on the inside and outside of the wall, floor, roof, or ceiling.

R = resistance or **resistivity**, which is the reciprocal of transmission, conductance, or conductivity. This is explained under the heading *Resistance.*

Difference Between Conductivities and Conductances. It will be noted that conductance (**C**) is similar to conductivity (**k**) except that conductivity is based on a 1" thickness whereas conductance is for a thickness other than 1" and often embraces combinations of two or more materials. Certain heterogeneous materials or combinations of materials are of such character that it would not be feasible to give the coefficient in terms of an inch thickness. Materials of this type include hollow tile, cinder and concrete blocks, roofing, combinations of building materials and air spaces. Coefficients for these materials are termed conductances, and are given in terms of the actual thickness or construction stated, such as 4" hollow tile, or a combination of wood sheathing, building paper, and stucco. Both conductivity and conductance express the rate of heat transfer between the two surfaces. Conductivities and conductances of various materials are given in **Table 1.** Conductivities in most instances were determined by means of the hot-plate test method. Conductances are determined either by the hot-plate method or the hot-box method.

Conductivities and Conductances Not Additive. Conductivities and conductances are not additive. In other words, two or more conductances or conductivities cannot be added together to obtain any rational or significant result. For example, if the conductivity of material "X" is 0.30 and the conductivity of material "Y" is 0.40, their combined conductivity will not be the sum of these quantities, or 0.70—although it is, of course, greater than either conductivity value alone.

Coefficients of Transmission (U Values). Conductivities and conductances of materials or conductances of air spaces and surfaces are not applied directly in estimating heat losses through walls, floor, roof, or other parts of a structure, but are used in the proper formula for deriving the over-all coefficient of transmission which is the ultimate objective. This over-all coefficient of transmission (**U**) expresses the rate of heat transfer from the air on one side to the air on the other side and is the quantity used for heat loss calculations.

It will be noted that **Table 3** may be used in conjunction with **Table 2** for determining coefficients of transmission of frame constructions with the types and thicknesses of insulation between the framing indicated in Columns A to D inclusive. **Fig. 1** may also be used for this purpose. This figure, however, may be used for materials having conductivities between 0.2 and 1.0 and therefore covers a wider range of materials than Table 3.

Resistances. As previously explained, conductivities and conductances are not additive; neither are coefficients of transmission. Resistances, however, can be added. These are simply the reciprocals of conductivities and conductances. The reciprocal of a number is one (unity) divided by the number. For example, the reciprocal of 2 is ½ and the reciprocal of 6 is 1/6. The resistances of various building and insulating materials are given in the right-hand column of **Table 1.** (For tables see accompanying BPF sheets.)

FORMULA FOR CALCULATING U VALUES

The basic formula for calculating the U values of simple walls is as follow:

$$U = \frac{1}{\frac{1}{f_i} + \frac{x}{k} + \frac{1}{f_o}} \qquad (3)$$

where
x = thickness of wall (inches)
U, k, f_i and f_o are as previously defined

Example 1: Calculate the U value of a 10" concrete wall, assuming the conductivity of concrete to be 12.0.

Solution: According to Table 1, the inside surface conductance (f_i) is 1.65, the outside surface conductance 6.00. k = 12.0; x = 10. Substituting in Formula (3) :

$$U = \frac{1}{\frac{1}{1.65} + \frac{10}{12} + \frac{1}{6.0}} = \frac{1}{1.58} = 0.62$$

If the construction contains one or more air spaces, formula (3) should be modified to include a factor $\left(\frac{1}{a}\right)$ in the denominator for each air space. If the construction contains other materials there must be an $\left(\frac{x}{k}\right)$ or $\left(\frac{1}{C}\right)$ for each material.

RESISTANCE METHOD OF CALCULATING U VALUES

The U value of any construction can be obtained by adding the component resistances of the various materials in a wall or roof plus the inside and outside surface resistances and the resistance of any air spaces (¾" or more in width) in the construction. The U value is then obtained by taking the reciprocal of the sum of the resistances. Consider again the foregoing example for a simple 10" concrete wall, with resistances as follows:

Outside surfaces	0.17
10" concrete = 10 x 0.08	0.80
Inside surface	0.61
Total resistance	1.58

$$U = \frac{1}{1.58} = 0.62$$

If the wall had contained an air space and the same thickness of concrete, the resistance of the air space (0.91) would be included, making the total resistance 1.58 + 0.91, or 2.49; the U value would then be: $U = \frac{1}{2.49} = 0.40$

The calculated coefficients of transmission (U values) of many common types of construction are given in **Tables 2 to 14**, inclusive. These were originally calculated by the author from the conductivities and conductances in Table 1 and are similar to those in the Guide of the American Society of Heating & Ventilating Engineers. U values for doors and windows are given in **Table 15.**

TECHNICAL DEFINITION OF THERMAL INSULATION

A thermal insulating material qualifies as such because it possesses "concentrated heat resistance" or has a "high degree of heat resistance per unit of thickness." These statements are general and do not permit differentiation between insulating materials and non-insulating materials. For the purpose of this text, therefore, a thermal building insulation is defined as a proprietary (owned) manufactured building material having a rate of heat flow (conductivity) not to exceed 0.50 Btu per hour per square foot per degree Fahrenheit per inch thickness, as tested by a recognized authoritative laboratory, and having, when installed, a total heat resistance of not less than 1.0.

DEFINITION OF INSULATED BUILDING

An insulated building is here considered to be one having a U value for both walls and top floor ceiling (plus roof) of 0.20 or less.

CONDUCTIVITIES OF PROPRIETARY INSULATIONS

Many manufacturers of insulating materials have had tests conducted on their products by recognized testing laboratories and will supply such data upon request. However, too much importance should not be attached to minor differences in the conductivities of insulating materials. Other practical factors may be of far greater importance than differences of say one or two hundredths (0.01 or 0.02) in theoretical conductivities of two materials. Other things being equal, the material with the lower conductivity has the greater heat resistance for the same thickness of insulation but small differences in heat resistance can readily be offset by improper application or by damage to, or misuse of, the material. It should also be remembered that the total resistance of the material depends on the thickness used as well as the conductivity.

Published conductivity values are not always representative of the values of the material as sold or applied. It is possible in some cases that the tests may have been conducted on specially prepared samples of a density which may not correspond with that of the material as sold or applied. The reputation of the testing laboratory should also be considered.

Conductivities shown in **Table 1** for the various types of insulating materials have been used for many years for calculating heat loss coefficients. The calculated U values based on these conductivities have been found to compare favorably in most cases with actual test values for the various types of construction. Conductivities of individual proprietary insulations may deviate by various amounts from the values given in Table 1.

Comparisons on Basis of Resistances. Comparisons are sometimes made on the basis of the resistances of two or more materials. Such comparisons can also be misleading.

For example, it is sometimes assumed that a material having twice the heat resistance of some other material has twice the insulating value. This is not correct because insulating value, so-called, is not proportional to resistance if the term "insulating value" refers to the percentage reduction in the rate of heat transfer. Consider for example a wall having a U value of 0.25 and insulations A and B having total installed resistances of 2 and 4, respectively. Insulation B therefore has twice as much resistance as insulation A. However, when added to the wall, insulation A reduces the U value from 0.25 to 0.167, or 33⅓%, and insulation B reduces the U value from 0.25 to 0.125 or 50%. Therefore insulation B is not twice as effective in this case as insulation A, but in the ratio of 50% to 33⅓%.

INSULATING EFFICIENCIES

An insulating material reduces the rate of heat loss through a wall, roof, or other structure to which it is applied. That part of the reduction due to insulation is known as the insulating efficiency. This quantity of relationship is expressed by the following formula: $E = \frac{100 \times (U - U_i)}{U}$ (4)

E = Efficiency of insulation (percent)
U = Coefficient of transmission of uninsulated construction
U_i = Coefficient of transmission of insulated construction

Example: What is the efficiency of 1" of insulating board applied to a 4" concrete roof deck having a metal lath and plaster ceiling?

Solution: According to Table 12, the coefficient of transmission (U) of the uninsulated construction is 0.40. The coefficient of transmission (U) of the insulated construction is 0.18. Therefore, the efficiency of the insulation in this case is: $E = 100 \times \frac{(0.40 - 0.18)}{0.40}$

$$= 100 \times \frac{0.22}{0.40} = 55.0\%$$

The efficiency of an insulation is the same as, or equivalent to, the amount of heat, expressed as a percentage, prevented from passing through the wall, roof, or other construction in either direction in a given period of time.

Data in this Building Products Facts sheet were derived by Paul D. Close, former Technical Secretary of the American Society of Heating and Ventilating Engineers and of the Insulation Board Institute. They are intended for use in connection with the formulae contained in Mr. Close's article, "Theory and Basic Principles of Insulation," in this (August 1946) issue of **Progressive Architecture.** This sheet contains Fig. 1 and Tables 1, 2, and 3. Tables 4 through 15, inclusive, will be published in the September 1946 issue.

Figure 1, below, may be used for determining coefficients of transmission of frame construction. EXAMPLE: Given a wood-framed, wood-sheathed wall with clapboard exterior, wood lath and plaster interior surface (U = 0.25) insulated with any fill material having a conductivity (k) of 0.30, what is the conductance of the insulated wall? From left edge of chart read across at U = 0.25 to conductivity curve 0.30; read down to bottom scale; conductance of insulated wall is 0.76. Tables 2 and 3 may be used similarly but are more limited in scope.

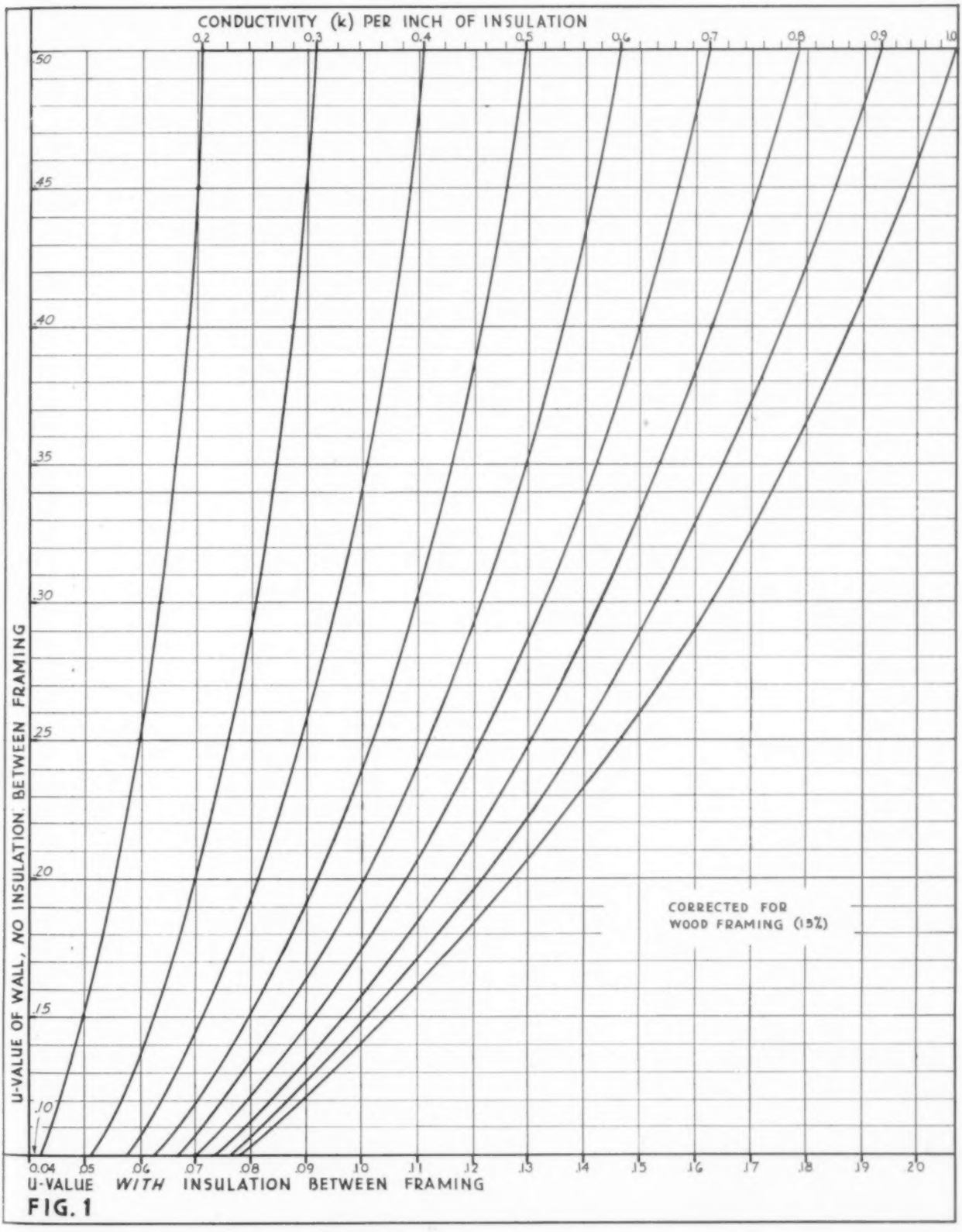


FIG. 1

TABLE 1 - CONDUCTIVITIES (k) and CONDUCTANCES (C) for CALCULATING HEAT LOSS COEFFICIENTS

These constants expressed in Btu per hr per sq ft per degree F temp. difference; Conductivities (k) per inch thickness; Conductances for thickness or construction stated.

MATERIAL	DESCRIPTION	CONDUCTIVITY or CONDUCTANCE k	C	RESISTANCE 1/k or 1/C
AIR SPACES				
Bounded by ordinary materials	Vertical,[a] ¾" or more in width		1.10	0.91
Bounded by aluminum foil	" " " " "		0.46	2.17
EXTERIOR FINISHES (Frame walls)				
Brick veneer	4" thick (nominal)			0.44
Stucco (1")		12.50		0.08
Wood shingles			1.28	0.78
Yellow pine lap siding			1.28	0.78
INSULATING MATERIALS				
Aluminum foil	See "Air Spaces"			
Bats	Enclosed both sides	0.27		3.70
Blankets	Mineral, Veg. fiber, animal hair	0.27		3.70
Corkboard	Pure, no added binder	0.30		3.33
Insulating board		0.33		3.03
Mineral wool	Bats or blankets	0.27		3.70
Vermiculite		0.48		2.08
INTERIOR FINISHES				
Gypsum plaster		3.30		0.30
" board (⅜")	Plain or decorated		3.70	0.27
" lath (⅜") & plaster	Plaster assumed ½" thick		2.40	0.42
Insulating board (½")	Plain or decorated			1.52
" " lath (½") & plaster	Plaster assumed ½" thick			1.67
" " " (1") "	" " " "			3.18
Metal lath & plaster	" " ¾" "		4.40	0.23
Plywood (⅜")	Plain or decorated			0.47
Wood lath & plaster			2.50	0.40
MASONRY MATERIALS				
Brick	Common	5.00		0.20
"	Face	9.20		0.11
Cement mortar		12.00		0.08
3" Clay tile (hollow)	1 air cell direction heat flow		1.28	0.78
4" " " "	1 " " " " "		1.00	1.00
6" " " "	2 " cells " " "		0.64	1.57
8" " " "	2 " " " " "		0.60	1.67
10" " " "	2 " " " " "		0.58	1.72
12" " " "	3 " " " " "		0.40	2.50
16" " " "	One 10", one 6" tile		0.31	3.23
Concrete	Lightweight aggregate[b]	2.50		0.40
Concrete	Sand & gravel aggregate	12.00		0.08
3" concrete block	Hollow, cinder aggregate		1.28	0.78
4" " "	" " "		1.00	1.00
8" " "	" gravel "		1.00	1.00
12" " "	" " "		0.80	1.25
8" " "	" cinder "		0.60	1.66
12" " "	" " "		0.53	1.88
8" " "	" light wt. " [b]		0.50	2.00
12" " "	" " " [b]		0.47	2.13
Gypsum fiber concrete	87.5% gypsum, 12.5% wood chips	1.66		0.60
3" gypsum tile	Hollow		0.61	1.64
4" " "	"		0.46	2.18
Stucco		12.50		0.08
Tile & terrazzo	For flooring	12.00		0.08
ROOFING MATERIALS				
Asbestos shingles			6.00	0.17
Asphalt "			6.50	0.15
Built-up roofing	Assumed thickness ⅜"		3.53	0.28
Heavy roll "			6.50	0.15
Slate		10.00		0.10
Wood shingles			1.28	0.78
SHEATHING				
Gypsum (½")			2.82	0.35
Insulating board (25/32")				2.37
Plywood (5/16")				0.39
Fir, yellow pine (1")	Actual thickness 25/32"			0.98
Fir, plus building paper	" " "		0.86	1.16
SURFACES				
Still air	Ordinary non-reflective materials, vertical		1.65	0.61
15 mph wind velocity			6.00	0.17
WOODS				
Fir sheathing (1"), building paper, yellow pine lap siding			0.50	2.00
Maple, oak		1.15		0.87
Yellow pine, fir		0.80		1.25

[a] *Conductance values for horizontal air spaces depend on whether the heat flow is upward or downward, but in most cases it is sufficiently accurate to use the same values for horizontal as for vertical air spaces.*

[b] *Expanded slag, burned clay, or pumice.*

Coefficients in Tables 2 & 3 are expressed in Btu per hr per sq ft per degree F difference in temperature between the air on the 2 sides, and are based on a wind velocity of 15 mph.

TABLE 2 - COEFFICIENTS OF TRANSMISSION (U) OF FRAME WALLS NO INSULATION BETWEEN STUDS[a] (See Table 3)

EXTERIOR FINISH	INTERIOR FINISH	TYPE OF SHEATHING: Gypsum ½" thick A	Plywood 5/16" thick B	Wood 25/32" thick, bldg. paper C	Insulating Board, 25/32" thick D	WALL NUMBER
Wood Siding (Clapboard)	Metal lath & ¾" plaster	0.33	0.32	0.26	0.20	1
	Gypsum board (⅜") decorated	0.32	0.32	0.25	0.20	2
	Wood lath & plaster	0.31	0.31	0.25	0.19	3
	Gypsum lath (⅜") & ½" plaster	0.31	0.31	0.25	0.19	4
	Plywood (⅜") plain or decorated	0.30	0.30	0.24	0.19	5
	Insulating Bd. (½") plain or decorated	0.23	0.23	0.19	0.16	6
	" " lath (½") & ½" plaster	0.22	0.22	0.19	0.15	7
	" " " (1") " "	0.17	0.17	0.15	0.12	8
Wood[b] Shingles	Metal lath & ¾" plaster	0.25	0.25	0.26	0.17	9
	Gypsum board (⅜") decorated	0.25	0.25	0.25	0.17	10
	Wood lath & plaster	0.24	0.24	0.25	0.16	11
	Gypsum lath (⅜") & ½" plaster	0.24	0.24	0.25	0.16	12
	Plywood (⅜") plain or decorated	0.24	0.24	0.24	0.16	13
	Insulating Bd. (½") plain or decorated	0.19	0.19	0.19	0.14	14
	" " lath (½") & ½" plaster	0.19	0.18	0.19	0.13	15
	" " " (1") " "	0.14	0.14	0.15	0.11	16
Stucco	Metal lath & ¾" plaster	0.43	0.42	0.32	0.23	17
	Gypsum board (⅜") decorated	0.42	0.41	0.31	0.23	18
	Wood lath & plaster	0.40	0.39	0.30	0.22	19
	Gypsum lath (⅜") & ½" plaster	0.39	0.39	0.30	0.22	20
	Plywood (⅜") plain or decorated	0.39	0.38	0.29	0.22	21
	Insulating Bd. (½") plain or decorated	0.27	0.27	0.22	0.18	22
	" " lath (½") & ½" plaster	0.26	0.26	0.22	0.17	23
	" " " (1") " "	0.19	0.19	0.16	0.14	24
Brick Veneer[c]	Metal lath & ¾" plaster	0.37	0.36	0.28	0.21	25
	Gypsum board (⅜") decorated	0.36	0.36	0.28	0.21	26
	Wood lath & plaster	0.35	0.34	0.27	0.20	27
	Gypsum lath (⅜") & plaster (½")	0.34	0.34	0.27	0.20	28
	Plywood (⅜") plain or decorated	0.34	0.33	0.27	0.20	29
	Insulating Bd. (½") plain or decorated	0.25	0.25	0.21	0.17	30
	" " lath (½") & ½" plaster	0.24	0.24	0.20	0.16	31
	" " " (1") " "	0.18	0.18	0.15	0.13	32

[a] *Coefficients not weighted; effect of studding neglected.* [b] *Furring strips between wood shingles and all sheathings except wood.* [c] *Small air space & mortar between bldg. paper & brick veneer neglected.* [d] *Nominal thickness 1".*

TABLE 3 - COEFFICIENTS OF TRANSMISSION (U) OF FRAME WALLS WITH INSULATION BETWEEN FRAMING[b]

COEFFICIENT WITH NO INSULATION BETW. FRAMG.	COEFFICIENT WITH INSULATION BETWEEN FRAMING: BLANKET OR BAT INSULATION 1" thick A	2" thick B	3" thick C	3 5/8" LOOSE MINERAL WOOL D	NUMBER
0.11	0.078	0.064	0.055	0.051	33
0.12	0.083	0.067	0.057	0.054	34
0.13	0.088	0.070	0.059	0.056	35
0.14	0.092	0.073	0.061	0.058	36
0.15	0.097	0.075	0.062	0.059	37
0.16	0.10	0.077	0.065	0.060	38
0.17	0.10	0.080	0.066	0.062	39
0.18	0.11	0.082	0.068	0.063	40
0.19	0.11	0.084	0.069	0.064	41
0.20	0.12	0.087	0.070	0.066	42
0.21	0.12	0.088	0.072	0.067	43
0.22	0.12	0.090	0.073	0.069	44
0.23	0.12	0.093	0.074	0.069	45
0.24	0.12	0.094	0.076	0.070	46
0.25	0.13	0.095	0.076	0.072	47
0.26	0.13	0.096	0.077	0.072	48
0.27	0.14	0.097	0.078	0.073	49
0.28	0.14	0.098	0.078	0.073	50
0.29	0.14	0.10	0.080	0.075	51
0.30	0.14	0.10	0.080	0.075	52
0.31	0.14	0.10	0.082	0.076	53
0.32	0.15	0.10	0.082	0.076	54
0.33	0.15	0.11	0.083	0.077	55
0.34	0.15	0.11	0.083	0.078	56
0.35	0.15	0.11	0.085	0.078	57
0.36	0.16	0.11	0.085	0.079	58
0.37	0.16	0.11	0.087	0.080	59
0.38	0.16	0.11	0.087	0.080	60
0.39	0.16	0.11	0.087	0.081	61
0.40	0.16	0.11	0.088	0.082	62
0.41	0.16	0.11	0.088	0.082	63
0.42	0.16	0.11	0.088	0.082	64
0.43	0.17	0.11	0.090	0.083	65
0.44	0.17	0.12	0.090	0.083	66

NOTES FOR TABLE 3

[a]—This table may be used for determining the coefficients of transmission of frame constructions with the types and thicknesses of insulation indicated in Columns *A* to *D* inclusive between framing. Columns, *A*, *B* and *C* may be used for walls, ceilings or roofs with only one air space between framing but are not applicable to ceilings with *no* flooring above. (See Table 8.) Column *D* is applicable to walls only. EXAMPLE: Find the coefficient of transmission of a frame wall consisting of wood siding, 25/32" insulating board sheathing, studs, gypsum lath and plaster, with 2" blanket insulation between studs. According to Table 2, a wall of this construction with *no insulation* between studs has a coefficient of 0.19 (Wall No. 4*D*.) Referring to Column *B* above, it will be found that a wall of this value with 2" blanket insulation between the studs has a coefficient of 0.084.

[b]—Coefficients corrected for 2 x 4 framing, 16" o.c.

[c]—Based on one air space between framing.

WATERPROOFING AND DAMPPROOFING

PART I (Part II will appear in the September 1946 issue)

By BEN JOHN SMALL

Organized information relating to most waterproofing and dampproofing materials and methods has been infrequently presented in abbreviated form. The terms "waterproof," "dampproof," "weatherproof," "weather-resistant," "water-repellent," and similar expressions have been employed rather loosely. Under the prodding of the Federal Trade Commission, a product described as "waterproof" soon becomes "weather-resistant" or some other dilution of the word "waterproof," the contention being that few materials are truly waterproof. (Science claims that water can be forced through glass.)

To help clear a path in the lush forest of technical and commercial literature on the subject, an outline of current practice becomes helpful.

WATERPROOFING

Waterproofing is a process wherein an impermeable barrier is created to withstand water pressure. Generally, three methods are employed:

I —Membrane Method
II —Integral Method
III—Plaster Method

★ ★ ★

I—MEMBRANE METHOD is a system of waterproofing with continuous impermeable membranes cemented together. Materials frequently used:

1. **Membranes:**
   - (a) Coal-tar-saturated woven cotton fabric (Fed. Spec. HH-C-591 or ASTM 173) for use with coal-tar pitch
   - (b) Asphalt-saturated woven cotton fabric (Fed. Spec. HH-C-581a or U. S. Navy 81-38 or ASTM 173) for use with asphalt
   - (c) Coal-tar-saturated felt (Fed. Spec. HH-F-201 or ASTM 227) for use with coal-tar pitch
   - (d) Asphalt-saturated felt (Fed. Spec. HH-F-191 or ASTM 226) for use with asphalt
   - (e) Combinations of fabric and felt

Note: Fabric is more durable than felt and is recommended where there is deflection and vibration; for corners, angles, and irregular surfaces and where no protection courses are used.

2. **Cementing Materials:**
   - (a) Coal-tar pitch (Fed. Spec. R-P-381, Type II or U. S. Navy Spec. TW or ASTM 450, Type B)
   - (b) Asphalt (Fed. Spec. SS-A-666, Type III, Class A or U. S. Navy Spec. AW or ASTM 449, Type B)

3. **Primers:**
   - (a) Asphalt (Fed. Spec. SS-A-701 or U. S. Army Spec. 3-116 or ASTM 41)
   - (b) Coal-tar creosote (Fed. Spec. TT-W-560 or ASTM 43)

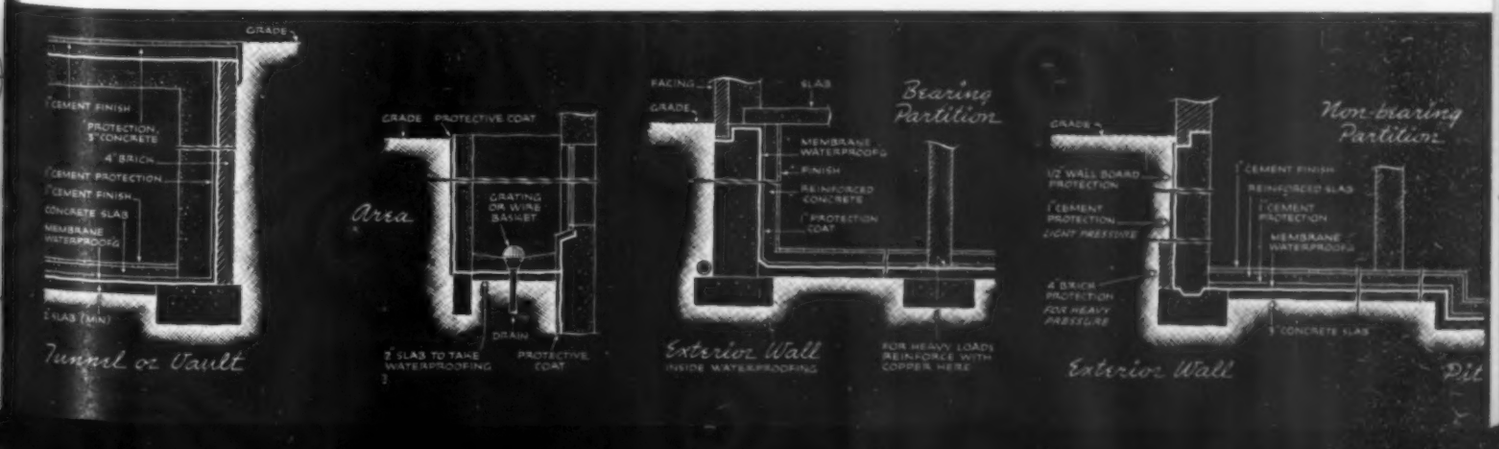
4. **Protection Course** is a layer of material intended to prevent disintegration and puncture of the membranes. Materials frequently used:
   - (a) Brick
   - (b) Tile
   - (c) Concrete
   - (d) Cement Mortar
   - (e) Composition Boards
   - (f) Impregnated Composition Boards

5. **Protection Course and Wearing Surface** is a layer of material intended to prevent disintegration and puncture of the membranes and also serve as a wearing surface. Materials frequently used:
   - (a) Brick
   - (b) Tile
   - (c) Concrete
   - (d) Cement Mortar
   - (e) Asphalt Paving Blocks
   - (f) Impregnated Composition Boards
   - (g) Granite Blocks
   - (h) Bituminous Paving Mixtures

6. **Advantages Claimed for Membrane Method:**
   - (a) Membranes yield with movement of structure
   - (b) Porous concrete weaknesses overcome in a measure by use of membranes

7. **Disadvantages:**
   - (a) Poor accessibility for repair purposes in the event of membrane failure.

MEMBRANE METHOD



MEMBRANE METHOD

RECOMMENDED NUMBER THICKNESSES - MEMBRANE WATERPROOFING - for varying water pressures

HEAD of water (ft)	FABRIC & PITCH		FELT & PITCH	
	Plies fabric	Mopping pitch	Plies felt	Mopping pitch
1-3	2	3	2	3
3-6	2	3	3	4
6-9	3	4	4	5
9-12	3	4	5	6
12-18	4	5	6	7
18-25	5	6	7	8
25-35	6	7	10	11
35-50	7	8	11	12
50-75	8	9	13	14
75-100	10	11	14	15

THICKNESS & REINFORCING OF SLAB - WATER HEAD 1 to 10 Ft., SPANS 6 to 24 Ft.

Table based on simple spans. Concrete stress 650 psi, steel 16000 psi. Mix: 1-2-4.
Provide distribution rods perpendicular to main reinforcing and wired thereto, ⅜ϕ-12" o.c. for slabs 8" or less; ½ϕ12" o.c. for thicker slabs.

Head of water above bottom of slab	Lifting pressure in Lb. per sq. ft.	SPAN	6'	8'	10'	12'	14'	16'	18'	20'	22'	24'
1'	62½	SLAB	4"	4"	4"	4"						
		STEEL	⅜ϕ-12"	⅜ϕ-12"	⅜ϕ-12"	⅜ϕ-12"						
2'	125	SLAB	4"	4"	4"	4½"	5"	5½"	6"	6"	6½"	6½"
		STEEL	⅜ϕ-12"	⅜ϕ-7½"	⅜ϕ-5"	½ϕ-7½"	½ϕ-7"	½ϕ-6½"	½ϕ-6½"	½ϕ-5½"	½ϕ-5½"	½ϕ-4½"
3'	187½	SLAB	4"	4½"	5"	5½"	6"	7"	7½"	8"	8"	8½"
		STEEL	⅜ϕ-7½"	⅜ϕ-5"	½ϕ-7"	⅝ϕ-9	⅝ϕ-8"	⅝ϕ-8"	⅝ϕ-7"	⅝ϕ-6½"	⅝ϕ-5½"	⅝ϕ-5½"
4'	250	SLAB	4"	5"	6"	6½"	7½"	8"	9"	9½"	10"	10½"
		STEEL	⅜ϕ-5"	½ϕ-9"	½ϕ-6"	½ϕ-5"	⅝ϕ-7"	⅝ϕ-6"	⅝ϕ-6"	¾ϕ-8"	¾ϕ-7"	¾ϕ-6½"
6'	375	SLAB	4¾"	6"	7"	8"	9"	10"	11"	11½"	12½"	13½"
		STEEL	½ϕ-7"	½ϕ-5"	⅝ϕ-7"	⅝ϕ-6"	⅝ϕ-5"	⅝ϕ-4½"	⅝ϕ-4"	¾ϕ-5½"	¾ϕ-5"	¾ϕ-5"
8'	500	SLAB	5½"	7"	8"	9½"	10½"	11½"	13"	14"	15"	15½"
		STEEL	½ϕ-6"	⅝ϕ-7½"	¾ϕ-8½"	¾ϕ-7½"	⅞ϕ-8½"	⅞ϕ-7½"	⅞ϕ-7"	⅞ϕ-6½"	⅞ϕ-6"	⅞ϕ-6"
10'	625	SLAB	6"	7½"	9	10½"	12"	13"	14½"	15½"	16½"	18"
		STEEL	½ϕ-5"	¾ϕ-9"	⅞ϕ-10"	⅞ϕ-8½"	⅞ϕ-7½"	⅞ϕ-6½"	⅞ϕ-6"	⅞ϕ-5½"	⅞ϕ-5"	⅞ϕ-5"

★ ★ ★

II—INTEGRAL METHOD is a system of waterproofing by means of compounds added to concrete and cement mortar during mixing.

1. **Compounds Frequently Used:**
   - (a) Calcium chloride (liquids, powders)
   - (b) Calcium chloride admixtures (semi-liquids, liquids, pastes)
   - (c) Soaps (semi-liquids, liquids, pastes)
   - (d) Hydrated lime and soaps (powders)
   - (e) Fine fillers (ground silica, lime, soapstone, flint)
   - (f) Miscellaneous compounds (semi-liquids, liquids, powders, pastes, heavy oils, fatty acids, metallic powders)
2. **Advantages Claimed:**
   - (a) Shrinkage reduction
   - (b) Segregation prevention
   - (c) Void filling
   - (d) Increased workability
   - (e) Increased chemical activity of cement
   - (f) Permeability reduction
   - (g) Waterproofing
3. **Disadvantages:** This method cannot obviate leakage due to:
   - (a) Settlement
   - (b) Expansion
   - (c) Excessive shrinkage
   - (d) Poor construction and expansion joints
   - (e) Poor bond between fresh and hardened concrete or cement mortar
   - (f) Improper mixing, placing, or curing of concrete or cement mortar.

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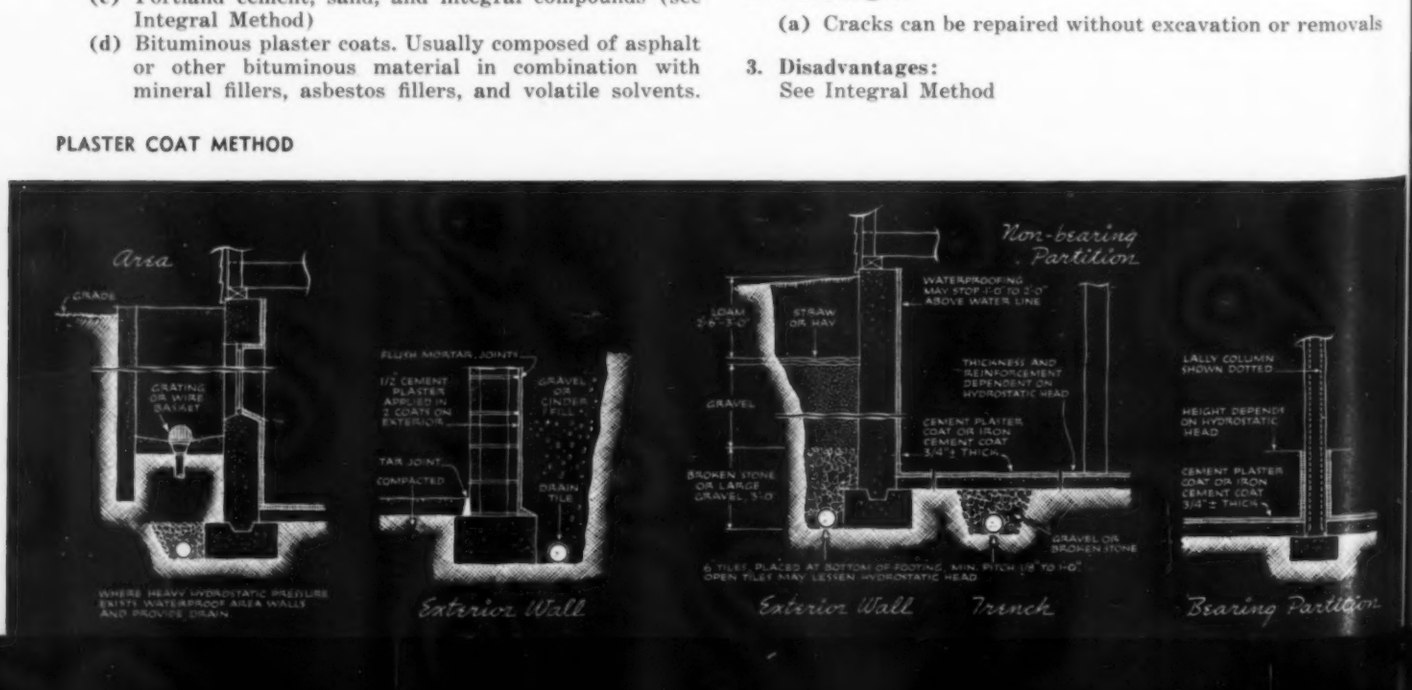
III—PLASTER COAT METHOD is a system of waterproofing by means of trowelled-on coatings.

1. **Materials Frequently Used:**
   - (a) Portland cement and sand mixture containing iron powder and sal ammoniac, ½" to ¾" thick
   - (b) One part Portland cement, one-quarter part lime putty, and three parts sand, by volume, ½" to ¾" thick
   - (c) Portland cement, sand, and integral compounds (see Integral Method)
   - (d) Bituminous plaster coats. Usually composed of asphalt or other bituminous material in combination with mineral fillers, asbestos fillers, and volatile solvents. Usually ⅛" thick on walls; ¼" thick on floors covered with cement mortar. [Fed. Spec. SS-C-153, Type 1, asphalt base; or asphalt mastic, ASTM 491; or bituminous grout (below ground) ASTM 171; or bituminous grout (above ground) ASTM 170]
   - (e) Asphalt emulsion (asphalt, clay, and water). Usually ⅛" thick
2. **Advantages:**
   - (a) Cracks can be repaired without excavation or removals
3. **Disadvantages:**
   See Integral Method

PLASTER COAT METHOD


Area
GRADE
CRATING OR WIRE BASKET
WHERE HEAVY HYDROSTATIC PRESSURE EXISTS WATERPROOF AREA WALLS AND PROVIDE DRAIN
Exterior Wall
FLUSH MORTAR JOINTS
½ CEMENT PLASTER APPLIED IN 2 COATS ON EXTERIOR
GRAVEL OR CINDER FILL
TAR JOINT COMPACTED
DRAIN TILE
Non-bearing Partition
WATERPROOFING MAY STOP 1'-0" TO 2'-0" ABOVE WATER LINE
LOAM 2'-6"-3'-0"
STRAW OR HAY
GRAVEL
THICKNESS AND REINFORCEMENT DEPENDENT ON HYDROSTATIC HEAD
CEMENT PLASTER COAT OR IRON CEMENT COAT 3/4" ± THICK
BROKEN STONE OR LARGE GRAVEL 3'-0"
6 TILES PLACED AT BOTTOM OF FOOTING, MIN. PITCH 1/8" TO 1'-0". OPEN TILE MAY LESSEN HYDROSTATIC HEAD
GRAVEL OR BROKEN STONE
Exterior Wall
Trench
LALLY COLUMN SHOWN DOTTED
HEIGHT DEPENDS ON HYDROSTATIC HEAD
CEMENT PLASTER COAT OR IRON CEMENT COAT 3/4" ± THICK
Bearing Partition

from the TECHNICAL PRESS

By JEAN SHORT and DAVID ALDRICH

BOOKS

Piping Handbook. *Sabin Crocker, Fourth Edition. McGraw-Hill Book Company, 330 W. 42nd St., New York City. 1376 pp., illus., tables, $7.00*

Fully revised, and much enlarged, this handbook is indispensable for all concerned with industrial applications of piping. Chapters have been added on gas piping, refrigeration piping, hydraulic power transmission piping, and corrosion, which also covers the subject of protective coatings.

The book covers properties of fluids, metallurgy of piping materials—the scientific principles that influence the design, construction, or use of piping systems. Pipe, valves, fittings, hangers, supports—all the materials of piping are given detailed consideration.

The original area-moment or graphoanalytical method for solving piping flexibility problems has been continued, but simplified solution charts for certain frequently encountered shapes of bends have been added.

Theory of Structures. *S. Timoshenko and D. H. Young. McGraw-Hill Book Co., 330 W. 42nd St., New York City. 488 pp. 5¾" x 8¾", figures, tables, $5.00*

A thorough reference on the theory of structures for the practicing engineer—detailed explanations, formulae, diagrams, tables, and charts supplying accurate exposition of statically determinate and statically indeterminate structures. From an analysis of the elements of plane statics, the book goes on to describe statically determinate trusses in one plane, influence lines, formation and analysis of space trusses with hinged joints, development of the expressions for strain energy, methods of calculating deflections of trusses, methods of computing redundant reactions and forces in members of statically indeterminate trusses, and the construction of influence diagrams for these trusses, analysis of bending of beams and frames, and a treatment of the theory of arches, including discussion of symmetrical arches, non-symmetrical arches, and rings.

The book is a sound working tool; it provides a theoretical basis for practical methods of analysis of trusses and frames. Timoshenko's earlier and well known Russian book, *Theory of Structures*, was drawn upon for much of the basic information here presented. The treatment is clear and noteworthy for its ample use of illustrative examples.

PAMPHLETS

Building Materials and Structures Report 104—*Structural Properties of Prefabricated Plywood Lightweight Constructions for Walls, Partitions, Floors, and Roofs. Sponsored by the Douglas Fir Plywood Association, Arnold Wexler, Sanford B. Newman, and Vincent B. Phelan. Nat'l Bur. of Standards, U. S. Dept. of Commerce, Government Printing Office, Washington 25, D. C. Paper bound, 48 pp., illus., charts.*

The Douglas Fir Plywood Association designed, built, and submitted to the U. S. Bureau of Standards a number of wall, roof, and floor sections of lightweight, plywood construction. This report, one of a series issued by the Bureau of Structural Properties of Constructions intended for low-cost houses and apartments, covers the load deformation relations and strength of the elements when subjected to compressive, transverse, concentrated, impact, and racking loads by standardized methods.

The stressed-skin panels employ studs ranging from 1" x 3" to 2" x 2" with Douglas fir plywood, 5/16" bonded with water-resistant protein glue of soy-bean and casein base. The 1/4" plywood was 3-ply, wallboard grade ("Plywall"); the 5/16" sheets were "Plyscord" standard. After each specimen was tested, the inside face was removed to expose framing and samples of framing and plywood were taken.

The results of load tests, as well as lab and sponsors' comments, are given in tables and drawings throughout the report. It is estimated that over 5000 houses have been assembled (largely in the middle west) from prefabricated panels similar to those tested, produced by twelve different manufacturers. The constructions are designed to be erected on any conventional type of masonry foundation, floors are designed to rest on wood sills or plates and consist of precut joists and prefab floor panels overlaid with sheathing paper, plywood subflooring, and finished floor. Such panels are usually room length (10, 12, 14, 16, and 18') by 4' and are fastened to the joists by nailing strips secured to the joists. Ceilings consist of precut joists and prefabricated ceiling panels of plywood. Usually 8'-0" wide, they are fastened to joists by nailing strips. Roofs consist of precut rafters, plywood sheathing, and any suitable type of roofing.

Concrete for Industrial Buildings and Garages. *Portland Cement Association, 33 West Grand Ave., Chicago, Ill. Paper pamphlet, 40 pp., illus.*

The Portland Cement Association has prepared this booklet to aid designers in the solution of problems affecting the economy, safety, and serviceability of industrial buildings of concrete construction. The text is confined to specific details of structural layout, especially of the types of reinforced concrete construction which have been developed extensively in the past few decades. Details of floor construction, stairs, walls, and roofs are presented, followed by general planning for additional stories, extensions to the building, and installation of electric circuits. The last six sections of the booklet deal with special problems of garage construction.

Steel Joist Construction. *Handbook, published by The Steel Joist Institute, 3709 24th St., N.E., Washington 18, D. C. 1946 edition. 16 pp. Tables, charts, diagrams.*

This brief Handbook contains concise yet complete information on open-web steel joists. It starts with a short survey of the history, purposes, and fire-resistivity of steel joist construction, continues with both complete and short-form standard specifications (the latter intended for incorporation into building codes), the Code of Standard Practice of the Steel Joist Institute, and recommendations for handling and erection. Specifications and Codes have been revised as of April 30, 1946. The Handbook closes with Standard Loading Tables and Bridging Details. It should be valuable to architects, structural engineers, and building officials. (Obtainable through PROGRESSIVE ARCHITECTURE: see "Manufacturers' Literature.")

Trane Weather Magic, *Vol. 9, No. 6. The Trane Company, La Cross, Wis. 8" x 11" pamphlet, 8 pp. November 1945.*

The Trane Company is anxious that the public should understand the desirable features and the limits of application of reverse cycle refrigeration, sometimes called "the heat pump."

The pamphlet describes the basic refrigeration and reverse refrigeration ("heat pump") cycles with the aid of simple diagrams. The conventional refrigeration cycle evaporates a gas refrigerant in the conditioned area, thus cooling the area. The reverse refrigeration cycle heats the area by condensing the refrigerant. Where the same system is used for both winter heating and summer cooling, the system becomes unavoidably more complex.

A chart illustrates the effect of various conditions of evaporating and condensing temperatures upon the "Coefficient of Performance."

Notice to Readers: Unfortunately, PROGRESSIVE ARCHITECTURE has no facilities for obtaining for readers copies of publications reviewed here. Copies are usually obtainable directly from the publisher concerned, whose address, when available, is given at the head of each review.

MANUFACTURERS' LITERATURE

★ *Editors' Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.*

Affixing Means

★ **1-52.** *Nailock Steel Channels*, 8-p. illus. booklet. Data on a nail-and-channel system of nailing material over steel, concrete, masonry. Detail drawings for various applications. Sanymetal Products Co., Inc.

Air Treatment

1-49. *A Dependable Source of Supply*, (industrial air-conditioning equipment), St. Louis Blow Pipe and Heater Co., Inc. Reviewed July.

1-50. *Viking Summer, Winter, Year Round Air Conditioning*, Viking Manufacturing Corp. Reviewed July.

18-31. *Worthington Equipment for Refrigeration and Air Conditioning (Bulletin WP-1099-B48)*, Worthington Pump & Machinery Corp. (See No. 18-31 under "Refrigeration.")

1-51. *Young Heating, Cooling, Air Conditioning Equipment*, 4-p. illus. listing of air conditioning units, heating and cooling coils, horizontal and vertical discharge unit heaters, copper convectors. Young Radiator Co.

Controls

3-64. *Penn Automatic Controls for Heating Service (Bulletin 1508-K)*, 20 pp., illus. 1946 condensed catalog and price list on: room thermostats, oil-burner safety controls, fan and limit controls, relay-transformers, temperature and pressure controls, etc. Penn Electric Switch Co.

Doors and Door Equipment

4-54. *Aetna Steel Door Frames for Modern Homes*, Aetna Steel Products Corp. Reviewed July.

4-55. *Kennatrack, AIA File 27-A*, illus. folder on advantages of steel or alloy metal track and carrier units for single or parallel sliding doors. Detail drawings; data on drill jig for installation use. Jay G. McKenna, Inc.

Drafting Room Equipment

4-56. *What's Your Postwar Problem?* 4-p. consumer folder illustrating and describing types of printing and developing equipment. Charles Bruning Co., Inc.

4-47. *Perfect Circles in Pencil or Ink*, Charles Bruning Co., Inc. Reviewed July.

4-51. *Bruning Slide Rules and Scales*, Charles Bruning Co., Inc. Reviewed July.

Electrical Equipment

5-31. *Hanger Outlets and Floor Boxes (No. 72), AIA File 31-C-72*, 6-p. bulletin listing 3 hanger outlet types and 7 types of floor boxes; dimensions, prices. Frank Adam Electric Co.

5-32. *Electrical Modernization Guide*, 20-p. illus. booklet. Suggestions for improving or planning good home wiring systems; data on an "add-a-circuit" program for re-wiring. Wiring diagrams; table of required outlets; wiring accessories. General Electric Co.

5-33. *Four Degrees of Home Electrification (B-3774)*, 12-p. illus. booklet. Suggested wiring diagrams and basic equipment for 4 types of homes ("Thrift, Budget, Ideal, De Luxe!"). Recommendations for: number of lighting, switch, convenience, special purpose outlets; wiring specification for small and medium size homes. Westinghouse Electric Corp., Better Homes Dept.

Fireplace Equipment

6-66. *Your Fireplace*, 30-p. illus. booklet. General information on selecting fireplace type and accessories. Plan drawings of 4 prize-winning designs; installation and building instructions; dimension table; data on outdoor designs. Majestic Co. (25 cents per copy —make check or money order payable to Majestic Co.)

Flashing

6-67. *Copper Through-Wall Flashing (12-H)*, Copper & Brass Research Association. Reviewed July.

Flooring

6-68. *Norton Floors (1935)*, 6-p. illus. folder on alundum terrazzo aggregate used in terrazzo floors, stairs, ramps, for safety and decor; also as used in cement and tile floors. Specifications, colors, sizes, etc. Norton Co.

Glass

7-49. *Carved Glass*, Harriton Carved Glass. Reviewed July.

7-51. *Making Your Home More Attractive with "Pittsburgh" Glass (G5793)*, Pittsburgh Plate Glass Co., Dept. PPG110. Reviewed July.

Gypsum and Gypsum Products

7-52. *Architectural Specifications, AIA File 37-A*, 4-p. illus. folder listing specifications for "Weatherwood" decorative and structural products — insulating building board, plaster base, tile, plank, and asphalt-coated sheathing, etc. U. S. Gypsum Co.

Hardware

8-94. *Cleveland Sash Pulleys (Bulletin 46)*, Cleveland Lock Works. Reviewed July.

8-95. *Catalog No. 4 (ornamental hardware)*, Erco Manufacturing Co. Reviewed July.

From H. S. Getty & Co. Reviewed July:

8-96. *The Getty Internal Gear Casement Operator for Metal Casement Windows, AIA File 27C2.*

8-97. *The Getty Internal Gear Casement Operator for Wood Casement Windows, AIA File 27C2.*

8-98. *Soss Invisible Hinges, AIA File 27-B-1*, Soss Mfg. Co. Reviewed July.

8-99. *Blue Ribbon Designs (93A, B, C, D)*, Stanley Works. Reviewed July.

Heating and Heating Equipment

★ **8-103.** *Quikheter Convection and Radiant Heat (73), AIA File 31-K-3*, 4-p. bulletin on an electric heater for building into the wall. Frank Adam Electric Co.

8-104. *Aldrich Heat-Pak Oil-Fired Boilers (BB4512-10)*, 4-p. illus. folder on a steel burner-boiler unit, oil-fired. Aldrich Co.

8-109. *Century Oil Burner, Model L*, 2-p. illus. folder on an oil-burning unit for large or small homes. Specifications. Century Engineering Corp.

8-108. *Electrol, A Complete Unit for the Small Home (Form 578)*, 4-p. illus. folder on a cabinet-enclosed burner and control unit for homes. Dimensions, capacities. Electrol Incorporated.

8-117. *Williams Oil-O-Matic Winter Air Conditioner Furnace-Burner Unit Model 10 (LO-7)*, Eureka Williams Corp., Williams Oil-O-Matic Div. Reviewed July.

8-110. *You Can Heat Your Home From Your Armchair with a Delco-Heat Oil Burner*, General Motors Corp., Delco Appliance Div. Reviewed July.

8-111. *Mastercraft Oil Burner (4611)*, Harvey-Whipple, Inc. Reviewed July.

8-112. *Presenting New Oil Heating Designs and Profit Opportunities for You (Form O B-45130)*, Heil Co. Reviewed July.

8-114. *No Basement Necessary with the Quaker Hi-Boy (611)*, 2-p. illus. folder on two 2-stage oil burners (70,000 and 75,000 Btu cap.) for small homes. Quaker Mfg. Co.

8-115. *Rexoil Fuel Saving Oil Burner (641)*, 4-p. illus. folder on an oil burner with fuel control device, for use in homes. Reif-Rexoil, Inc.

8-116. *Roberson Heatsum Cable*, L. N. Roberson Co. Reviewed July.

Hospital Equipment

8-118. *Hospital Electro-Static Grounding Intercoupler (Bulletin HG-1)*, Cannon Electric Development Co. Reviewed July.

Insulation

9-49. *Here's the Insulation for Crawl Spaces*, American Flange & Mfg. Co., Ferro-Therm Div. Reviewed July.

★ **9-50.** *Application Data Sheets Balsam-Wool Sealed Insulation, AIA 37.* Portfolio of 32 data sheets on uses of blanket and structural insulation, made of new wood fibers chemically treated to resist fire, moisture, vermin. Application instructions, cutting, calculation of heat transmission coefficient, data on condensation, heat loss studies, etc.; detail drawings. Wood Conversion Co.

Kitchen Equipment

11-10. *It's Fun to Plan Your Own Kitchen with Curtis Cabinets*, 24-p. illus. booklet showing photos, some in color, of arrangements of kitchen cabinet units. Detail drawings of unit types, with sizes. Curtis Companies, Inc.

MANUFACTURERS' LITERATURE

PROGRESSIVE ARCHITECTURE—Pencil Points, 330 West 42nd Street, New York 18, N. Y.
I should like a copy of each piece of Manufacturers' Literature listed.

We request students to send their inquiries directly to the manufacturers.

No.	No.	No.	No.
No.	No.	No.	No.
No.	No.	No.	No.
No.	No.	No.	No.

NAME

POSITION

FIRM

MAILING ADDRESS ☐ HOME ☐ BUSINESS

CITY STATE

8/46

PLEASE PRINT

Library Equipment

12-68. *Snead Metal Library Bookstacks*, Snead & Co. Reviewed July.

Lighting and Lighting Equipment

12-73. *A Most Illuminating 50 Years*, 24 pp., illus. Anniversary edition, beginning with brief history of lighting, and summarizing this company's research and application in electrical lighting; emphasis on founder's policy of relating fixture designs to architects' and building owners' plans. Edward F. Caldwell & Co., Inc.

4-p. illus. folder and 3 bulletins on 12" circline fluorescent lamps, holders, ballasts for "Slimline" fluorescent lamps; wiring diagrams. General Electric Co., Lamp Department:

12-74. *The New Circline Mazda Fluorescent Lamp (CL45).*

12-75. *High-Voltage Single-Lamp and Tulamp Ballasts (Supp. 2 to GEA-3293F).*

12-76. *Single-Lamp Ballasts (Supp. 3 to GEA-3293F).*

12-77. *Bulletin 31 (on circline lampholder).*

Load Transportation

12-71. *Overhead Handling Equipment (Bulletin C-1)*, American Monorail Co. Reviewed July.

Metal

13-35. *The Bending of Wrought Iron Plates*, A. M. Byers Co. Reviewed July.

Paint

16-109. *The Quality Paints of Martin-Senour*, Martin-Senour Co. Reviewed July.

Partitions

★ 16-110. *The Gold Bond 2-Inch Solid Partition System, AIA File 20-B-11*, 14 pp., illus., describing installation steps of steel and gypsum plaster 2" solid partitions, for use in apartments, hotels, schools, etc. Specifications, comparative technical data. Complete erection details which may be traced, incorporated into working plans. National Gypsum Co.

16-97. *Snead Mobilwalls*, Snead & Co. Reviewed July.

Piping Equipment

From Fibre Conduit Co. Reviewed July:

16-98. *Research Bulletin 435, Some Data on Orangeburg Pipe for Drainage Work.*

16-99. *Research Bulletin 436, Orangeburg Sewer Pipe (Case History No. 1).*

16-100. *Research Bulletin 437, Flow Capacity of Orangeburg Pipe.*

16-101. *Research Bulletin 443, Hydraulics of Some Common Applications of Orangeburg Pipe.*

Plumbing Equipment

8-107. *Automatic Hot Water!* 12-p. illus. consumer booklet on an automatic oil-fired water heater unit for homes; accessories. Coleman Co., Inc.

16-106. *Sperzel Sanitary Toilet Seats (Cat. 300), AIA File 29-H-22.* Sperzel Co. Reviewed July.

★ 16-111. *Handbook on Proper Sizing and Selection of Grease Interceptors (Form 44-87)*, 8-p. booklet compiled by two engineers, presents a scientific method of selecting the right grease interceptor for installation. Drawings, charts, slide rule for quick determination of correct interceptor for specific installation. J. A. Zurn Mfg. Co. (Price $1.00: make check or money order payable to J. A. Zurn Mfg. Co.)

Pump Equipment

16-108. *Influence of Ground-Water Level on Turbine Well Pump Performance (RP277)*, Worthington Pump & Machinery Corp. Reviewed July.

Refrigeration, Industrial

18-35. *Overhead Blower Units for Low Temperature Cooling (Cat. 110)*, 10-p. catalog of industrial refrigeration equipment; specifications, unit dimensions, performance ratings, prices, etc. Rempe Co.

18-29. *Worthington Refrigeration Unit, Freon-12*, Worthington Pump and Machinery Corp., Air Conditioning and Refrigeration Div. Reviewed July.

★ 18-30. *Worthington Centrifugal Refrigeration (Bulletin C-1100-B14)*, 22 pp., illus., on a refrigeration system for cooling water for large commercial and industrial applications. Data on refrigerants; equipment specifications; capacity and horsepower characteristics; dimensions; partial load characteristics. Worthington Pump and Machinery Corp.

18-31. *Worthington Equipment for Refrigeration and Air Conditioning (Bulletin WP-1099-B48)*, 30 pp., illus. Listing of air conditioning units, various types of refrigerators, coolers, condensers, chilling machines, pressure filters, pumps, fuel engines, turbines. Worthington Pump and Machinery Corp.

Rubber

18-33. *A Special Report for Product Designers*, Ohio Rubber Co. Reviewed July.

Rubber, Synthetic

18-34. *Silicone Rubber*, General Electric, Plastics Div. Reviewed July.

Skylights

19-61. *American Skylights (4e/1)*, 4-p. illus. folder. Data on semi-vacuum insulating glass block for skylights; on metal ventilating skylights, and other products. Specifications, details. American 3-Way Luxfer Prism Co.

Steel Joists

★ *Steel Joist Construction*, 16 pp., 1946 ed. Handbook for architects, engineers, building commissioners. Data on open web steel joists; standard specifications; recommended abbreviated building codes; code of Steel Joist Institute standard practice; standard loading table; bridging. Steel Joist Institute.

Trims

20-26. *Chromtrim, The Perfected Aluminum Molding*, R. D. Werner Co. Reviewed July.

Ventilation

22-13. *Duriron Exhaust Fans (Bulletin 1101-C), AIA File 30dl*, Duriron Co., Inc. Reviewed July.

22-15. *Herman Nelson Unit Ventilators (Bulletin 2464)*, Herman Nelson Corp. Reviewed July.

22-14. *Penglass Round, "Accelerator" Roof Ventilator, "Relief" Ridge Ventilator*, Pennsylvania Wire Glass Co. Reviewed July.

Water Softeners

23-68. *Refinite RO-S*, Crane Co. Reviewed July.

Welding

23-62. *"Bumblebee" Alternating Current Arc Welding Machines (ADW-53A)*, Air Reduction Sales Co. Reviewed July.

. . THERE **MUST** BE A REASON!

One of the most important research items we have met up with in years resulted from archaic New York City multi-family dwelling regulations. Current laws permit non-fireproof construction of such buildings up to 6 stories in height; there is pending in the State Legislature a bill limiting this type of building to 3 stories; and the bill's opponents, naturally, set up the howl that construction costs would be increased anywhere from 30% to 40% if the bill passed. Whereupon the American Iron and Steel Institute, the American Institute of Steel Construction, and the Steel Joist Institute joined forces to determine the actual effect of fire-resistive construction on costs.

First, they retained two apartment-house architects, H. I. Feldman and Andrew J. Thomas, to design buildings for specific locations, a non-fireproof and a fire-resistive building for each site. Then they determined costs on the basis of 1939 prices, and had their figures checked by experienced builders.

Costs per rentable room actually *decreased* by from 3.4% to 6.3% in three of the studies—a 1.3% increase was noted in one case—when fire-resistive construction was employed. Another item: planning devices permissible with fire-resistive (but prohibited with non-fireproof) design resulted in an increased number of rentable rooms—from 3.1% to 14.7%. Increased total costs resulting from the greater number of rooms ranged from 3.7% to 7.5%, but were offset by the potential increase in rental income, which ranged from 2.8% to 10.1% annually, so that the slightly greater total initial cost can be recovered in from 2 to 7½ years. And aside from percentages, the speculative real-estater ought to have a gleam in his eye at the prospect of fewer vacancies, lower insurance and depreciation rates, and prolonged amortization; the socially minded should rejoice at the greater fire-safety—which also has economic value—and the possibility of more desirable arrangement and planning; the esthete should cheer at the abolition of fire escapes. A complete report is available from the American Institute of Steel Construction, 101 Park Ave., New York 17, N. Y.

PAY YOUR MONEY AND TAKE YOUR CHOICE

The following direct quotations are not in any chronological order, they are simply instances of the contradictory statements which confront us daily: "A shortage of skilled workers in the building trades will delay construction . . . unless apprentice training is accelerated . . ." (Producers' Council). "The plan for paying subsidies to brick manufacturers announced by Housing Expediter Wyatt will lead to further increase (in building costs) after subsidies are withdrawn" (Structural Clay Products Institute). "The government's failure to expedite the housing program for veterans is approaching the status of a national scandal" (Long Island Home Builders Institute). ". . . non-housing construction hasn't been stopped or even curtailed . . . Housing is very much increased . . . CPA would do well to slow down FHA housing commitments, they are far in excess of the announced quota rate for 1946" (The Dow Service). "Home building has already been seriously retarded by the delay in revising price ceilings, and the 1946 home building program will fall far short . . ." (Producers' Council). To these add quotes from NHA: ". . . An increasing number of new and substitute materials and construction methods (is) being brought forward . . ." "Premium Payments Regulation No. 1, setting up a system of incentive payments to manufacturers of structural clay products, was issued today . . ." "Premium Payments Regulation No. 2" (soft-wood plywood) . . . "working on a third incentive payment plan . . . for gypsum board paper liner . . ." "plans announced by four Gov't. agencies (Housing, OPA, Justice, Treasury) for an intensive combined attack on the black market in building materials . . ." "We are now importing lumber . . . at the rate of about 100 million board feet per month . . ."

And then you stir in legislative action which is equally confused and boy! what a mess!

THIS MONTH'S PRODUCTS

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Electro-Airmat. Electronic air filter with electrostatically charged filter paper; weighs less, requires less space than filters with metal plate collectors. Operates on 110 volt, 60 cycle, single phase current. Mechanical replacement loader. American Air Filter Co., 125 Central Ave., Louisville 8, Ky.

Reco Fly Chaser Fan. For inside use over door or opening, or outside under canopy. Blows large stream of air downward; mosquitoes and flies do not pass through stream. Keeps out street dust, heat. 3 speeds; 110 volt, 60 cycle, AC current. Reynolds Electric Co., 2650 W. Congress St., Chicago 12, Ill.

DOOR EQUIPMENT

Weather-Tite Door Saddle. Aluminum alloy saddle attached to threshold has center riser which, when door is closed, engages by key (in end of door) to upright position. Prevents drafts, dust, insects, water. Adjustable key allows for door sagging or warping. Columbia Industries, 19th Ave. and 36th St., Long Island City 3, N. Y.

Kennatrack. Metal track and carrier units with plain or ball-bearing wheels, for single or parallel sliding doors. Drill jig for installation use. Jay G. McKenna, Inc., East Jackson Blvd., Route 5, Elkhart, Ind.

HEATING EQUIPMENT, CONTROLS

Chimneyless Furnace. Vacuum-draft, oil-burning unit for homes; filters, dehumidifies heated air. Draft created by suction fan pulling air through combustion chamber, requiring only exhaust vent. Borg-Warner Corp., Norge-Heat, Detroit, Mich.

Chronotherm. Automatic thermostat for time-setting temperatures in home heating systems. Minneapolis-Honeywell Regulator Co., 2753 Fourth Ave., South, Minneapolis, Minn.

KITCHEN EQUIPMENT

Electric Ranges. 4 types of home ranges (porcelain finish), 5 heats, over temperature control, oven vent, broiler meter, non-tip lock-stop oven shelves. General Electric Co., 1285 Boston Ave., Bridgeport 2, Conn.

Electric Refrigerators. 3 steel models, all with spring-mounted, sealed-in mechanism, forced-feed lubrication, stainless steel freezer, automatic lighting. Two have cold storage compartments, one has "chiller" tray. General Electric Co.

G-E Disposall. 3-qt capacity electrical appliance for automatic disposal of food wastes. Shredder mechanism in sink drain chops waste to particles which are flushed away by cold water with scouring action; safety top control. Can be used with septic tanks of proper capacity. General Electric Co.

PLUMBING EQUIPMENT

Duo-Washfountains. 2-person fixture for washrooms of small plants, offices, schools, public buildings, etc. Sprayhead controlled by foot treadle, self-flushing bowl. Stainless steel or white enamel iron units. Bradley Washfountain Co., N. 22 and W. Michigan Sts., Milwaukee 1, Wis.

Dial-Ese Faucet. Non-drip, cartridge control unit. Handle and base of "Cranelon" plastic (glass-like), also serving as insulator. Crane Co., 836 S. Michigan Ave., Chicago 5, Ill.

Hydrafilter. Grease interceptor based on new principle of hydraulic filtering grease by grease; separates various solids; collects salvageable grease. Wade Manufacturing Co., Elgin, Ill.

ROOFING

Fiberglas Roofing Mat Code S11 Y02, S11 Y12. Glass fibers bonded into felted sheet (0.015" thick; weight 0.0101 lb per sq ft), used as carrying and reinforcing agent for bitumen in roofing. Minimum breaking strength, 10 to 14 lbs per in. width; widths 36", 18". Withstands high summer heat. Owens-Corning Fiberglas Corp., 607 Madison Ave., Toledo, Ohio.

TILE

Amtico Panolene Type Tile. Improved tile in 6 standard sizes; said to be impervious to oil, grease, stains, cigarette burns. American Tile & Rubber Co., 3 Assunpink St., Trenton 2, N. J.

WATER TREATMENT

Micromet Feeder. Device to install in cold water inlet of residential water heater to facilitate use of phosphate glass compound which prevents lime-scale clogging of coils and lines, "rusty" water. No-No Specialty Co., 6915 Quincy Ave., Cleveland, Ohio.

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REVIEWS

PLANNING: BRITISH VERSUS AMERICAN STYLE

By Rita Davidson

Physical Planning. The Ground Work of a New Technique. Edited by Ian R. M. McCallum. The Architectural Press, London, 1945. 296 pp., illus. $5.00

Building the Future City. Edited by Robert Mitchell. The Annals of the American Academy of Political and Social Science, 3457 Walnut St., Philadelphia 4, Pa., 1945. 162 pp. $2.00

The New Planning. Redevelopment and Relocation. Being a Report of the London Conference of the Town and Country Planning Association. Edited by Barbara Bliss. Faber and Faber, Ltd., London, 1945. 116 pp.

Planning 1945: Part I, 82 pp.; Planning 1945: Part II, 88 pp. The A.S.P.O. 1313 E. 60 St., Chicago, Ill.

Planning symposia and conferences which have come out of Britain and America at approximately the same time reveal strikingly different stages of professional development in the two countries. In Britain the *public* is already wrangling with problems which the *professional societies* have not yet tackled in America.

This difference cannot be pushed off simply as being a product of a war-torn nation which *has* to rebuild. It is more indicative of a nation which can point to more than forty years of experimentation with garden cities, where an advanced capitalism revealed sharply the ill effects of the crowding of population and industry, and whose circumscribed area brings more determination to utilize more fully every square foot.

The current legislation in England for New Towns and the Distribution of Industry (which stemmed from earlier governmental inquiries on the problems of industrial location, land ownership, and full employment) is reflected in the discussions which the Britons conduct in their conferences and their articles about planning. The trans-Atlantic contrast is well illustrated by the prevailing attitudes on the loss of population in the center of the city. What in America is despaired of as "flight from the city" in Britain is encouraged as decentralization. We are so concerned with the problems of urban redevelopment that we have lost sight of the havoc being created on our peripheries. The British, on the other hand, have seized the opportunity of turning their "overspill" into a series of self-contained satellite cities organized along garden city lines.

Industrial location, which has received so little recognition in American planning circles, is one of the keynotes of British regional planning. Proposals for full employment and well balanced industry have been articulated with the need for healthy urban areas. Town and industrial planning go hand in hand. This is despite the fact that America has better census statistics, more complete resource surveys, and many more schools training planning personnel. True, we lack a Labor government and we have not been bombed into rebuilding, but the British would still seem to have the edge on these phases of planning.

Our recent A.S.P.O. conferences make lively reading, for the two state planning meetings were small enough for informal discussion and the give-and-take often ended in consensus. It is heartening that there was concern over an economic base for cities, that the

(Continued on page 96)

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10% Sulphuric acid	.025	.0000685
70% Nitric acid	.006	.0000188
10% Nitric acid	.000	.0000000
5% Hydrochloric acid	1.162	.00324
90% Acetic acid	.006	.0000188
87% Phosphoric acid	.006	.0000188
25% Phosphoric acid	.010	.0000292
7.9% Oxalic acid	.014	.0000412
9.1% Picric acid	.005	.0000137
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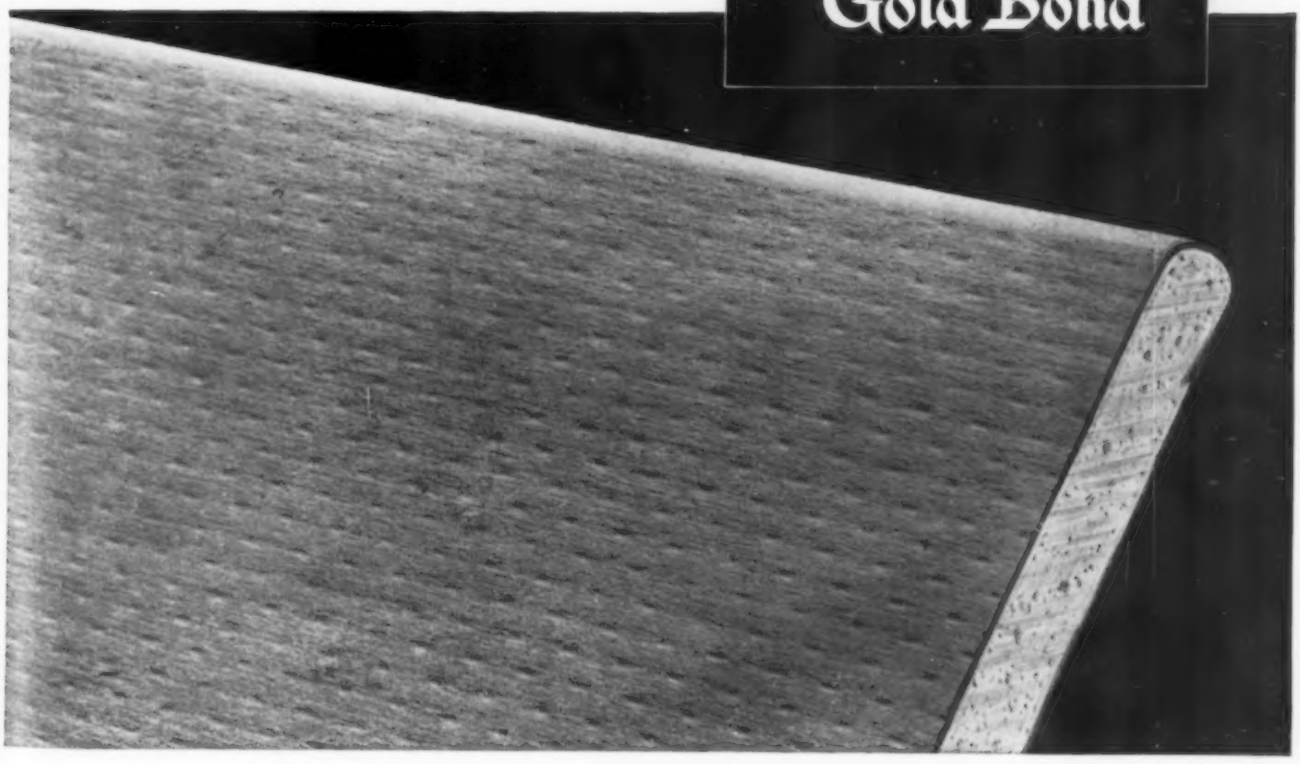

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REVIEWS

(Continued from page 94)

old "shelf of public works" idea was riddled as being far too narrow a responsibility for planning officials, that there was no smug agreement as to the nature of planning or what is a planner, and that the role of the "consultant planner" was overhauled critically. I was rather surprised, however, that so little seemed to be known about the problems of airport planning. Virtually no attention was paid to the rural-urban fringe! The limitations and powers of planning agencies and means of enlisting citizen support did not find any common meeting of minds but the different approaches were stimulating.

The British conference report indicates a more formal meeting, since the discussion followed a series of prepared papers and lacked the spontaniety of the American session. On the other hand, it suggested a grappling with more fundamental problems. The British planning idiom includes garden cities, control over industrial location and land use, trading estates, and planned contraction and decentralization of population. These are concepts which are barely mentioned here. Despite this, the Britons haven't, by far, solved their problems. They are plagued in their search for the correct formula for the administrative and financial machinery for their self-contained, self-limited garden towns. The decision whether to use an existing country town as a nucleus or to build anew is still in limbo. Encroachment upon their already limited agricultural land by other pressing uses (industry, housing, recreation) continues.

The conference was, in a way, an attempt to feel out the significance, for the local authorities, of the new Town and Country Planning legislation. The local officials still seem unsure of national support and the plans are by no means as imaginative as the statutory grant would warrant.

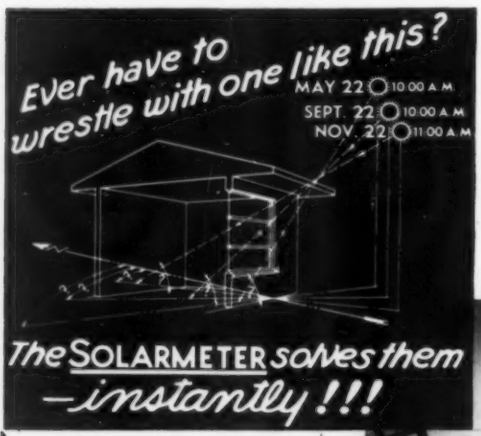
No comparable American study exists for the symposium on *Physical Planning* which outlines the "new technique" now developing as a result of the changed and more positive attitude to the planning of land use. The scope of the compendium indicates its definition of planning—a collection of specialists seeking the fullest use of resources to create a workable and esthetic environment.

Shumacher's chapter on economics (he was the author of *What Planning Will Mean in Terms of Money*, one of three *Planning Bogey* pamphlets) is the simplest and most plausible treatment of institutional economics I've read. The need to resolve the paradox of our anachronistic economic system and the justification for government spending are forcefully expounded. The sections on survey, ecology (the structure of human communities), and industry are valuable and span a hiatus in the planning literature. Unfortunately, those dealing with resources (forestry, agriculture, and minerals) seem over popular, and the chapter on land use is flatly disappointing.

The article on design, the longest of the collection, includes a historical survey, with pictures, of the changing town and country landscape. The analysis is original and provides an interesting background for one of the purposes of these articles, ". . . that the new technique must aim to make visually satisfying what the physical planner has made efficient."

The planning, training, and publicity chapters touch on issues too often ignored and indicate that the objectives of planning, training of its personnel, and public acceptance of what is to be planned are as important as the actual planning. The proposal for an Office of Reconstruction Information (ORI) to inform the public and win its support, as well as the suggestion that a school for planning be established on the site of one of the "new towns," indicate a progressive spirit. Other chapters are on transportation, housing, leisure, utilities, building, the land, and government. Astragal's section on history (what has been happening in English planning from 1909 to 1944) seems

(Continued on page 98)



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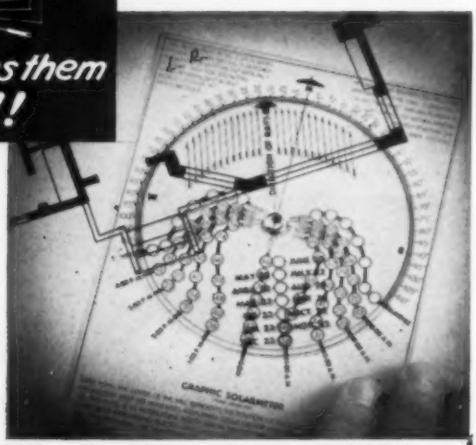

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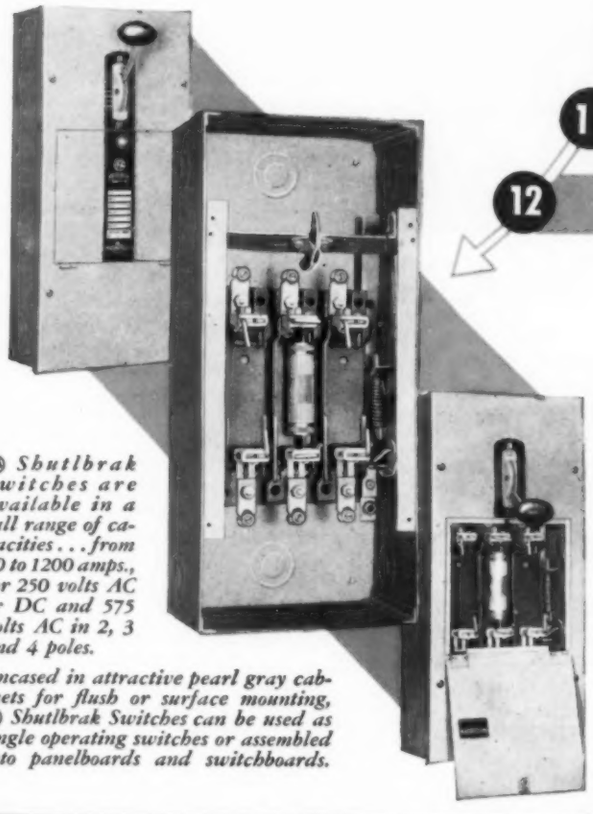

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REVIEWS

(Continued from page 96)

almost like a *New Yorker* "Talk of the Town" on a planning level.

Too little space is devoted to each problem and the treatment is elementary frequently, but for balance it is one of the better collections of planning articles and deserves emulation here. It is primarily good background reading for those wanting to know what planning was, is, and will be. There is a topical bibliography at the end which is most useful.

Building the Future City is another excellent symposium. Restricted by title to the urban scene, it does not touch on the regional or national problems raised in the British volume. Like too many of the Annals, the articles vary in quality and are not correlated. But there are some excellent contributions. "The Nature of Cities" by Chauncy Harris and Edward Ullman, geographers, is one of the better analyses of urban location and it is well supplemented by the discussion of "Changing City Patterns" by Martin Meyerson and Robert Mitchell. Catherine Bauer's "Good Neighborhoods" reflects a welcome maturing of the planning movement: it has arrived finally at a point where the concern is not only about physical scale and the economic base, but also whether a neighborhood includes people of "varied talents, training, and social-economic status."

The city is surveyed from almost every angle. Its needs in terms of health and welfare, transportation, education, culture and recreation, utilities, population trends, government, land policy, and the role of the citizenry are explored. The volume is written by urbanists who are keenly aware of the dissatisfactions of urban living but who feel, as Charles Ascher has expressed it, "We cannot retreat into unreality in terms of abandoning our present cities and starting all over again somewhere else . . . we must with faith and imagination rethink our cities from the ground up in the light of a true understanding of what our cities are for."

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TRUSTWORTHY SUMMATION

If You Want To Build A House. Elizabeth B. Mock, The Museum of Modern Art. Simon and Schuster, Inc., 1230 Sixth Ave., New York, N. Y., 1946. 96 pp., 133 plates. $2.00

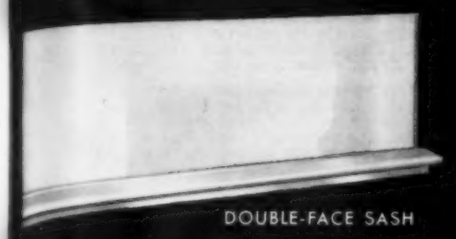
Another important contribution toward the understanding and appreciation of what modern architecture is and of how it can help to produce more and better houses for the same money, comes from the Museum of Modern Art under the authorship of its Curator of Architecture. This latest book informatively and pleasantly supplements in the field of house design the Museum's publication of last year *Built in U.S.A.*

The text is a restrained, comprehensive, and trustworthy summation of the philosophy of modern architecture. Its principles for the solution of the multitudinous problems of each room and the house as a whole—its planning, relation to the street and the community, construction, furnishings, and financing —are clearly and convincingly posited. The language and spirit of these informative chapters are persuasive, sprightly, and personalized. Much is interestingly said in little space. This intelligent, clear-sighted advocacy of modern design should show any reader the sound logic favoring its use. Photographs, well reproduced and generous in quantity, are presented of good modern work.

Weak spots are few. The illustrations might have been selected from a larger group of good modern architects. The comedy figure sketches strewn through the pages will not enhance the text for some readers. The typographical design of the book is not as sound as its architectural content. For example, the inharmonious use of lower case headings with a "traditional" type face is "'modern' in much the same spirit that one might nail a few boards across a gabled, stuccoed house-front and call it 'Tudor.'"

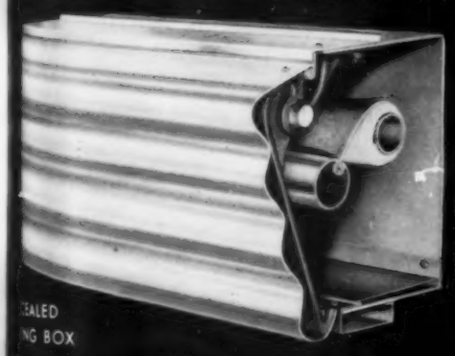
LAWRENCE E. MAWN

SASH ASSEMBLY

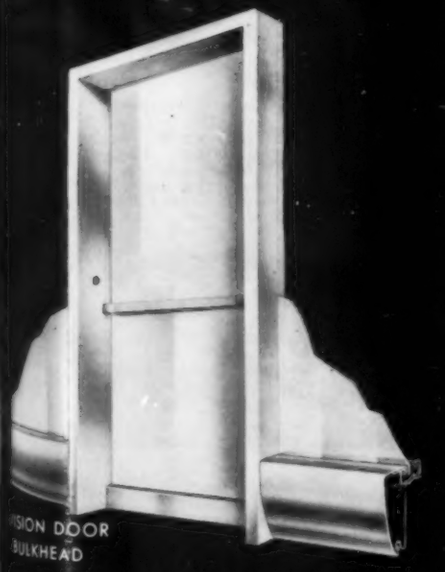


DOUBLE-FACE SASH

LOW BULKHEAD



EALED
NG BOX



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GUIDE TO PUBLISHED WORK

Prepared by CHARLOTTE ZAGER

COMMERCIAL

Office Buildings

Goodyear Tire and Rubber Co., Sydney—DUNCAN & HENDEL, DESIGNERS. A new addition to this plant is a modern, 2-story office building to accommodate 200 employees. Photos, floor plans. (Apr. Building and Engineering, p. 27)

Offices

Interior Office Development: Architect's Own Office, New York—REISNER & URBAHN, ARCHITECTS. Photos, selected details, floor plans. (Jun. Progressive Architecture, p. 77)

Display Office: No-Sag Spring Co., Chicago, Ill.—ALEXANDER GIRARD, ARCHITECT. Photos, floor plans, cross sections. (Jun. Progressive Architecture, p. 79)

COMMUNITY CENTERS

Community Center to Combine Memorial, Civic, and Recreational Features, Vestal, N. Y.—WALTER P. BOWEN, ARCHITECT. Floor plan, rendering. (Jun. The American City, p. 80)

PERIODICALS NOTED IN THIS ISSUE:

ARCHITECT AND ENGINEER, 68 Post St., San Francisco 4, Calif.

ARCHITECTURAL DESIGN AND CONSTRUCTION, 26 Bloomsbury Way, London W.C.1, England

ARCHITECTURAL RECORD, 119 W. 40th St., New York, N. Y.

ARTS AND ARCHITECTURE, 3305 Wilshire Blvd., Los Angeles 5, Calif.

BETTER HOMES AND GARDENS, 420 Lexington Ave., New York, N. Y.

BUILDING AND ENGINEERING, 20 Loftus St., Sydney, Australia

CANADIAN HOMES AND GARDENS, Montreal Centre 2, Dominion Square Bldg., Toronto 2, Canada

DOMUS, Via Monte di Pieta, 15, Milan, Italy

HOUSE BEAUTIFUL, 572 Madison Ave., New York 22, N. Y.

HOUSING PROGRESS, 95 Madison Ave., New York 16, N. Y.

LADIES' HOME JOURNAL, 1270 Sixth Ave., New York, N. Y.

L'ARCHITECTURE D'AUJOURD'HUI, 5, Rue Bartholdi, Boulogne (Seine), France

McCALL'S, 230 Park Ave., New York, N. Y.

PROGRESSIVE ARCHITECTURE-PENCIL POINTS, 330 W. 42nd St., New York 18, N. Y.

THE AMERICAN CITY, 470 Fourth Ave., New York 16, N. Y.

THE AMERICAN HOME, 444 Madison Ave., New York, N. Y.

THE AMERICAN SCHOOL BOARD JOURNAL, 330 W. 42nd St., New York 18, N. Y.

THE ARCHITECTS' JOURNAL, 45, The Avenue, Cheam, Surrey, England

THE ARCHITECTURAL FORUM, 350 Fifth Ave., New York 1, N. Y.

THE ARCHITECTURAL REVIEW, 45, The Avenue, Cheam, Surrey, England

THE NATION'S SCHOOLS, 919 N. Michigan Ave., Chicago 11, Ill.

THE NATIONAL HOUSE BUILDER AND THE BUILDING DIGEST, 17 Stratford Place, London W.1, England

THE SCHOOL EXECUTIVE, 470 Fourth Ave., New York 16, N. Y.

YOUR OWN HOME, 60 E. 42nd St., New York 17, N. Y.

COMPETITIONS

Four Prize-winning Plans for a Family With a $3,000 Income. Presentation of the top winners in the recent Progressive Architecture-Rich's, Inc. Georgia House Competition. Renderings, elevations, floor and plot plans. (Jun. House Beautiful, p. 96)

Crystal Palace Competition. First three prize-winning designs presented, along with editorial comments and judges' qualifying statements, interesting to both proponents and opponents of the competition practice. Perspectives, elevations, floor and site plans. (The Architects' Journal for May 16, p. 375)

Report on the Crystal Palace Competition—MAXWELL FRY. Commissioned by this magazine, a full and detached report on the competition, opinions on the judges' awards, and the writer's own selection of the prizeworthy designs. Perspectives, elevations, floor and site plans. (The Architects' Journal for May 23, p. 395)

Pimlico Housing Scheme Competition. Presentation of the three winning designs for the layout of a 31-acre area in Westminster, and the design of 2,000 apartments for the working classes, and necessary community facilities. Photos, floor and plot plans. (The Architects' Journal for May 30, p. 411)

EDUCATION

Articles

Planning and Landscaping School Grounds—EARL F. SYKES, PROF. OF EDUCATION, TEACHERS COLLEGE, WEST CHESTER, PA. Plot plans. (Jun. The American School Board Journal, p. 45)

Flexible School Buildings. Survey of problems inherent in designing flexible schools, and suggested solutions, including articles by Fred W. Hosier, Ray L. Hamon, Lawrence B. Perkins, Francis R. Scherer, Reginald E. Marsh, Wilfred F. Clapp and Clark E. Harris, and Paul F. Nocka. Photos, sketches, floor plans. (May The School Executive, p. 55)

Auditoriums

University Building, Indian Institute of Science—OTTO KOENIGSBERGER, N. B. BHATT, ARCHITECTS. A T-shaped plan emphasizes the double function of this modern dining hall-auditorium with kitchen space grouped in the front wings, and theatrical facilities at the rear of the stage. Photos, floor plans, cross section. (Jun. The Architectural Forum, p. 89)

Schools

First Permanent Postwar School Building—HOWARD V. LOBB, ARCHITECT. Underlying principle of construction in this new English school is the use of standardized permanent steel frames which can be covered with either temporary or permanent materials, and can easily be removed. Used as an illustration by the R.I.B.A. that a permanent construction for schools could be found which is more efficient and less costly than the M.O.W. standard hutting proposed by the Government. Photos, constructional drawings, floor plans. (May Architectural Design and Construction, p. 127)

Three Projected English School Designs: Secondary School and Village College, Watton-at-Stone—G. FAIRWEATHER, R. F. JORDAN, ARCHITECTS. Modern, open design for a rural area, with adult and community accommodations. Model, floor plans.

Proposed Modern Secondary School, Herts.—R. SHEPPARD, J. SHUFFLEBOTHAM, ARCHITECTS. Compact plan for a city site, to serve as a community center and county college, as well as secondary school. Model, floor plans.

Thrybergh Proposed Senior Council School, Yorkshire—SIR JOHN BURNET, TAIT & LORNE, ARCHITECTS. An extended one-floor plan on a 10-acre site with the buildings in two main blocks separated by the assembly hall. Model, floor plans. (May Architectural Design and Construction, p. 130)

Haughton High School, Haughton, La.—SAMUEL G. WIENER, ARCHITECT. This recently erected school has been planned so that future expansion will require but a minimum of change to the existing structure. Noteworthy is the modular mullion-column framing system that allows change in size of room by simple shift in partition location with no external changes necessary. Photos, floor plans. (Jun. Progressive Architecture, p. 70)

95 New School Buildings for New York City. Schools to be built under the postwar building program will represent the newest ideals of community use and a broad instructional program for children. Photos, floor plans. (May The American School Board Journal, p. 52)

Adelaide Davis Elementary School, Washington, D. C.—NATHAN C. WYETH, ARCHITECT. Photo, floor plans. (Jun. The American School Board Journal, p. 32)

Two Public Works Planning Projects . . . Schools Suitable for Residential Areas—W. A. CANNON AND C. I. THIELE; LOUIS E. JALLADE, ARCHITECTS. Elementary school at Niagara Falls, and grade and junior high school at North Hempstead, Long Island, N. Y., to be constructed as soon as labor and materials are available. Renderings. (Jun. The Nation's Schools, p. 37)

With Emphasis on the Kindergarten: Peck's Drive Grade School, Everett, Wash.—WILLIAM A. JOHNSON, ARCHITECT. Modern, one-floor elementary school in a residential district, with kindergarten and lower grades segregated on one side of the building with their own recreation and sanitation facilities. Rendering, floor plans, construction details. (Jun. The Nation's Schools, p. 38)

ENTERTAINMENT

Theaters

The Small (400-Seat) Motion Picture Theater: Building Types Study—Prepared under direction of BEN SCHLANGER, ARCHITECT, with J. S. REISNER, M. URBAHN, W. A. HOFFBERG, D. W. B. WARNER, E. CONTENT, F. SUTTON. Analysis of the small theater, including discussion of budget and site factors, the auditorium, audience access and conveniences, "exploitation" for the show, and interior design. Photos, sketches, diagrammatic schemes, floor plans. (Jun. Architectural Record, p. 99)

Community Theater — HERMANN HERREY, ARCHITECT. Detailed study of a proposed English playhouse with ingenious staging facilities designed for conventional and projected scenery. Renderings, elevations, cross sections, floor and site plans. (Jun. The Architectural Forum, p. 97)

HEALTH

Health Centers

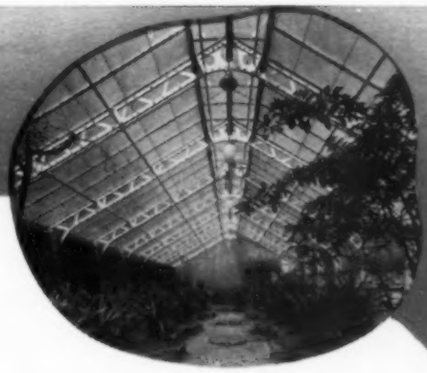
Infant Welfare Centers, Concord and Auburn, Sydney—R. LINDSAY LITTLE, ARCHITECT. Small, but nicely planned, municipal baby health centers, with "pram parks" for carriages, and a playing area for toddlers. Photos. (Apr. Building and Engineering, p. 30)

Hospitals

Elements of the General Hospital, Part I—HOSPITAL FACILITIES SECTION, U.S.P.H.S. Plans of various hospital units, administration department, diagnostic and treatment facilities, nursery, surgical, emergency, and obstetrics departments, for 50, 100, and 200-bed general hospitals. Photos, extensive floor plans. (Jun. Architectural Record, p. 73)

The Small Health Center-Hospital—HOSPITAL FACILITIES SECTION, U.S.P.H.S. An illustrative design demonstrating how the controversial combination of small rural health center and some limited inpatient care can be reconciled. Digest of an objective study of the facility by Dr. J. R. McGibony, Senior Surgeon, Hospital Facilities Section. Perspective, floor plans. (Jun. Progressive Architecture, p. 74)

(Continued on page 102)



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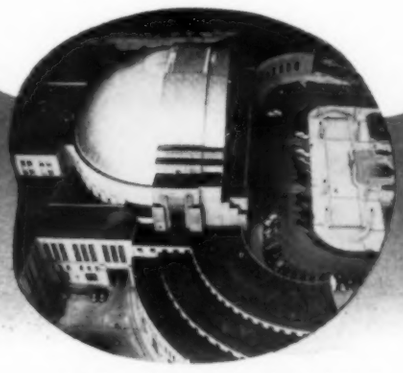

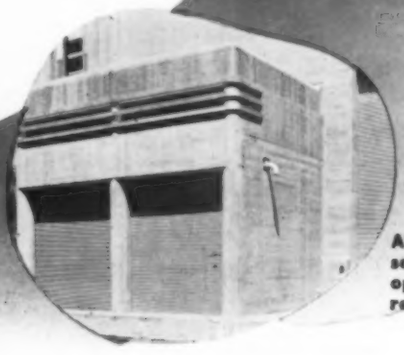

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GUIDE

(Continued from page 100)

Hospital at Stockholm — H. J. CEDERSTROM, ARCHITECT. The greatest structure in Sweden, this hospital is designed on the "block" principle, there being two parallel blocks, one accommodating mainly bedded wards, the other diagnostic and treatment wards, with polyclinics on the lower stories. Photos, cross sections, floor and plot plans. (May The Architectural Review, p. 135)

HOUSING

Articles

What America Wants to Build—WALTER ADAMS. Results of survey conducted by the magazine of a picked group of over 11,000 who had definite working plans for building. "He wants Cape Cod, says the average man," says Mr. Adams. (Jun. Better Homes and Gardens, p. 23)

A Case for Modern—JOHN CAULFIELD SMITH. Architectural editor tells his consumer-readers that modern houses look different from those of traditional design because they reflect a mode of living which bears no relation to that which produced historic architectural styles. Photos, floor plans. (Jun. Canadian Homes and Gardens, p. 19)

The Home in British Architecture—EUGENIO GENTILI. An illustrated review of British domestic architecture from the Renaissance to the present day. (Apr. Domus, p. 9)

Apartments

Top Flats — CHARLOTTE PERRIAND, CARLO BIAGGI, ARCHITECTS. Two solutions for making a home out of an attic. Photos, cross sections, floor plans. (Apr. Domus, p. 6)

Four Flats: A Bachelor's Flat—L. CANELLA, R. FONTANA, R. RADICI, ARCHITECTS; The Home of a Physician—L. CANELLA, R. RADICI, ARCHITECTS; The Third Flat—FRANCO ALBINI, ARCHITECT; A Loggia Becomes a Lounge—B.B.P.R., ARCHITECTS. Some examples of the modern Italian trends in architecture and furnishings of small apartments. Photos, floor plans. (Apr. Domus, p. 21)

Rental Project in Concrete: Ithaca, N. Y.—NORBERT H. SCHICKEL, DESIGNER-OWNER. The designer set out to prove in this 58-unit apartment building that better building, to be "solid, substantial, permanent" could be built with concrete without an increase in cost. Photos, floor plans. (Jun. The Architectural Forum, p. 104)

Hotels

Avila Hotel, Venezuela — HARRISON, FOUILHOUX AND ABRAMOVITZ, ARCHITECTS. A luxurious modern hotel designed by North American architects for an equatorial but semi-alpine climate in earthquake country. Photos, cross section, floor plans. (Jun. The Architectural Forum, p. 113)

Housing Projects

Gibraltar Housing Scheme—ROBERT ATKINSON, A. F. B. ANDERSON, ARCHITECTS. 730 apartments to rehouse 3,000 people, ranging from 5 to 8 floors in height, to be built on slopes overlooking Gibraltar Bay. Perspectives, photos, floor and site plans. (May Architectural Design and Construction, p. 137)

Co-op Scheme Cuts House Cost: Sunlight Knolls Project, Yonkers, N. Y.—POMERANCE AND BREINES, ARCHITECTS. Though individual design service was given each house, the fact that the same architects and builders were commissioned for this group of 16 houses resulted in savings through group purchasing. Renderings, floor and site plans. (Jun. Architectural Record, p. 92)

Four Houses in Group Effort, Winchester, Mass.—DAVID J. ABRAHAMS AND ASSOC., ARCHITECTS. Cooperation in building paid in this small project of traditional designs for 4 M.I.T. professors. Photos, floor plans. (Jun. Architectural Record, p. 94)

(Continued on page 104)

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AMERICA'S STANDARD FOR OVER 20 YEARS

GUIDE

(Continued from page 102)

Flats at North Melbourne. 11 blocks are being cleared of slums to make way for a project of 138 dwelling units in this suburb. Model, perspective, floor plans. (Mar. 25 Building and Engineering, p. 26)

War Buildings (for Peace). Presentation of wartime housing in the United States, including Marin City, Aluminum City, Cherry Point, and Channel Heights. Photos, floor and site plans. (Apr. Domus, p. 15)

"Wedgwood," Seattle, Wash. — THOMAS, GRAINGER & THOMAS, ARCHITECTS; ALBERT BALCH AND MAURY SETZER, DEVELOPERS AND BUILDERS. An example of the agreeable type of home community that can result when an aggressive homebuilder commissions competent architects to both lay out the pattern of the development and design the house types. Photos, floor plans. (Jun. Progressive Architecture, p. 50)

Housing at Ivrea — LUIGI FIGINI, GINO POLLINI, ARCHITECTS. Coverage of the recently built housing project of functional design constructed for the artisan and clerk employees of a factory in this small Italian town. Photos, elevations, floor and plot plans. (May The Architectural Review, p. 147)

Residences

Architectural Hindsight—BENTON URMSTON, DESIGNER. A family living in their small modern home for two years outlines some possible additions and improvements to their basic plan. Sketches, floor plans. (May Arts and Architecture, p. 32)

Stop-Gap House, Marin Co., Calif.—MARIO CORBETT, ARCHITECT. A house design to be built now with a view to additions as conditions permit. A "skytop pavilion," the main structural element is the rigid diaphragmatic roof which pitches up like a fan from the lavatory corner, opening wider and wider as it expands to the view, and all the rooms outdoor-indoor when window-doors are opened. Sketches, floor and plot plans. (May Arts and Architecture, p. 38)

Case Study House #7—THORNTON M. ABELL, ARCHITECT. Model of another design in the series of the magazine's Case Study House Program. Detailed more completely in Nov. 1945 issue. (May Arts and Architecture, p. 40)

Six Veterans Adopt a Basic Plan for Their Homes in St. Louis, Mo.—JOSEPH DENIS MURPHY, ARCHITECT. Functional, efficient basic plan to suit 6 families intending to build on adjoining lots. Rendering, floor plans. (Jun. Architectural Record, p. 91)

Wings Give This Home a Lift—VICTORINE AND SAMUEL HOMSEY, ARCHITECTS. Each living area of this house is a separate wing, providing adjacent, protected outdoor areas for specific uses. Photos, floor plans. (Jun. Better Homes and Gardens, p. 32)

For a Site That's Flat — N. A. ARMSTRONG, ARCHITECT. One-story colonial design in Port Credit, Ontario. Photos, floor plans. (Jun. Canadian Homes and Gardens, p. 22)

Three-level House On a Hill—GORDON S. ADAMSON, ARCHITECT. Garage at road elevation, first and second floors on the crest of the hill, demonstrate one solution to the problem of a sloping lot. Photo, floor plans. (Jun. Canadian Homes and Gardens, p. 23)

Modern Canadian Farmhouse — E. C. S. COX, ARCHITECT. Rendering, floor plans. (Jun. Canadian Homes and Gardens, p. 24)

Chatelaine House #1—JOHN B. PARKIN, ARCHITECT. First in series of five houses designed by leading Canadian architects to be presented in the magazine. Modern, one-story, stressing the possibility of combining indoor-outdoor living provisions and the traditional Canadian requisite of sound construction. Photos. (Jun. Canadian Homes and Gardens, p. 104)

Villa on Lake Como—PIETRO LINGENI, ARCHITECT. A modern, two-floor house of local stone, with a patio and great windows to take full advantage of the beautiful site. (Apr. Domus, p. 33)

A House for a Veteran to Build in 1946—FENWICK WALL, ARCHITECT. Design for a simple three-room house to be built

(Continued on page 106)

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GUIDE

(Continued from page 104)

now with possibilities for expansion to seven rooms. Renderings, floor plans. (Jun. House Beautiful, p. 87)

Prefabricated Housing for Communities—EUGENE CLUTE, EDITOR, **Prefabricated Homes.** Variety, beauty, and adaptability as well as economy are easily achieved in prefab communities, reports Mr. Clute. Photos. (Spring Housing Progress, p. 4)

Holiday House—H. T. WILLIAMS, ARCHITECT. An informal house to be built in any vacation locale, on any type of terrain, since it stands on posts or piling. Photo, floor plans. (Jun. Ladies' Home Journal, p. 46)

A Camp House—PAUL THIRY, ARCHITECT. A compact vacation house that can be used year-round by removing summer screened or glazed panels on the side of the house and closing the inner hinged doors. Photos, floor plans. (Jun. McCall's, p. 77)

House in Atherton, Calif.—WILLIAM F. HEMPEL, ARCHITECT. By skillful organization of space the architect has achieved far more livability and amenity than are usually found in a two-bedroom house of this size. Photos, floor plans. (Jun. Progressive Architecture, p. 53)

House in Dutchess Co., N. Y.—DANIEL SCHWARTZMANN, ARCHITECT. Now a weekend house, eventually to be a year-round house, a split level plan was used here since extensive excavation was impossible due to a natural rock outcropping. Photos, floor plans. (Jun. Progressive Architecture, p. 58)

Complete, Contemporary, and Prefabricated: Solar Homes Co., Brattleboro, Vt.—DONALD DURELL AND ASSOC., DESIGNERS AND BUILDERS. Soon to start selling complete, fully equipped houses of contemporary design, the Solar Homes prefabrication system is a post-and-stressed-skin-panel type. Assembly details and diagrams, typical floor plan. (Jun. Progressive Architecture, p. 60)

Trim and Shipshape—ATKIN NAVAL ARCHITECTURE, DESIGNERS. Connecticut naval architect's home of modern design provides both living and work space in a nautical atmosphere. Photos, floor plans. (Jun. The American Home, p. 36)

Licking the Problem Child House—CHALFANT HEAD, OWNER-ARCHITECT. A "minimum" house of only 800 sq. ft. of floor space achieves good and comfortable living through modern, careful planning. Photos, floor plans. (Jun. The American Home, p. 38)

Narrow Lot Beach House. Photos, floor plans. (Jun. The American Home, p. 43)

Unitroy System of House Construction—MICHAEL FLATMAN, DESIGNER; JOHN MASON, ENGINEER. Featured in this system is the use of a panel incorporating a patent compound of reed and cork applied wet to flat building sheets to which it adheres, giving the panels structural strength and high insulation value. This filler with the facing sheets forms a complete wall unit used for wall cladding, roofing, and partitioning in the 1-story design, and for partitioning in the 2-story design. Photos, floor plans, selected details. (The Architects' Journal for Apr. 18, p. 303)

House in Connecticut — FRANK LLOYD WRIGHT, ARCHITECT. Mr. Wright takes a barren hilltop and creates a site for the Loeb residence where none existed before. The design is notable for its massive stonework and bold use of circular shapes. Photos, floor and plot plans. (Jun. The Architectural Forum, p. 83)

House in Piedmont, Calif. — CLARENCE MAYHEW AND SERGE CHERMAYEFF, ASSOC. ARCHITECTS. An unusual relationship of owner, architect, and designer created this interesting, modern home, a successful integration of European and American trends in contemporary architecture. Photos, sketches, floor and site plans. (Jun. The Architectural Forum, p. 117)

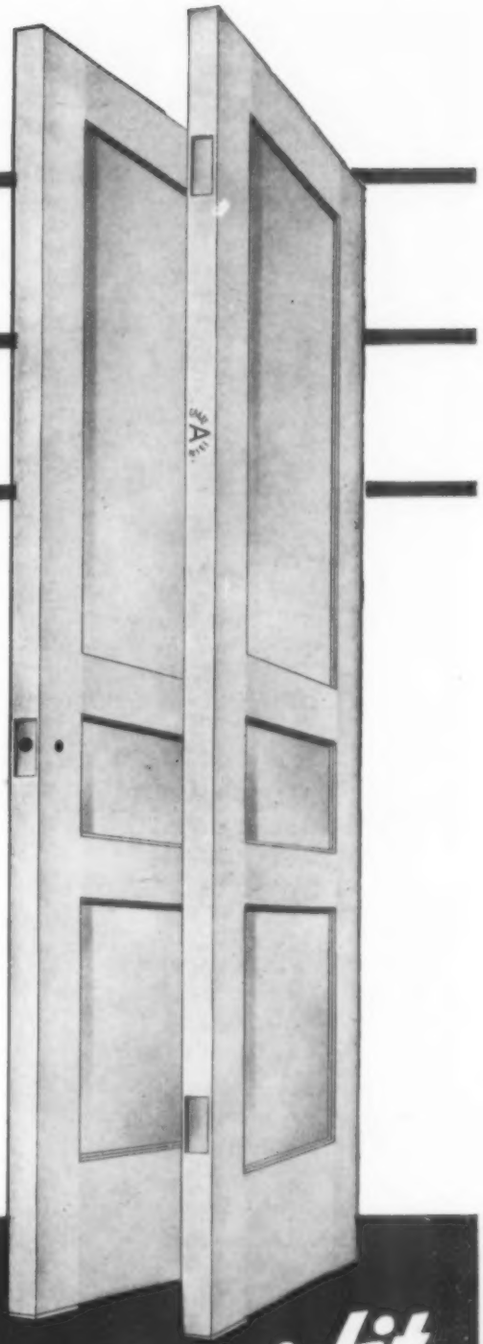
House in Denver — CARL H. RIESEN, ARCHITECT. A house of classical severity, low, one-story, carefully planned to avoid almost all glare and heat. Photos, rendering, floor plans. (Jun. The Architectural Forum, p. 124)

(Continued on page 108)

Reconversion Housing

Must Get First Call

on Douglas Fir Doors



HOUSING is desperately needed. Necessary materials—including Douglas Fir Doors—**must** be channeled to meet this need.

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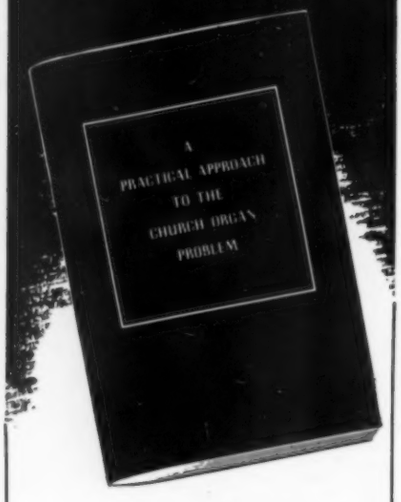

A BOOK THAT ANSWERS THE PROBLEMS OF THE CHURCH ORGAN COMMITTEE

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GUIDE

(Continued from page 106)

House in Palm Beach — TREANOR & FATIO, ARCHITECTS. One-story, modern house of wood built right on the shore, exemplifying indoor-outdoor living in its major areas. Photos, floor plans. (Jun. The Architectural Forum, p. 126)

House in Seattle—J. R. SPROULE, SUPERVISING ARCHITECT. A student laboratory of modern design for the Home Economics Department, U. of Washington, planned from the point of view of a home economist's analysis of function and care. Photos, floor plans. (Jun. The Architectural Forum, p. 128)

The Easiform House: The New Houses—D. A. ADAM, F. STOBART, ARCHITECTS. Based on a system devised in the 1920's in which cavity walls are built in situ and steel shuttering is used, a notable feature of this house is the continuous cavity wall, instead of the more customary cavity blocked at intervals by a solid upright. Photos, construction details. (May The National House Builder and the Building Digest, p. 14)

12 New Designs for Small Houses—ROYAL BARRY WILLS, ARCHITECT. 4 to 6 room houses in the traditional manner. Sketches, floor plans. (Jun. Your Own Home-1st issue, p. 6)

A Bungalow for the South — W. MONTGOMERY ANDERSON, ARCHITECT. Sketch, floor plans. (Jun. Your Own Home, p. 36)

A Ranch House for the Southwest—RICHARD A. MORSE, ARCHITECT. Sketches, floor plans. (Jun. Your Own Home, p. 37)

LANDSCAPE DESIGN

Cheerfulness in Living—ALLAN H. REID, LANDSCAPE ARCHITECT AND SITE PLANNER. Mr. Reid discusses new materials now available for grading work and for beautifying gardens, walks, etc. Photos. (Apr. Architect and Engineer, p. 14)

MEMORIALS

Veterans Memorial Building, Lapeer, Mich.—SAARINEN, SWANSON AND SAARINEN, ARCHITECTS. A living war memorial building, still in the project stage, to serve as a recreation facility for the community, designed for flexibility. Perspectives, floor and site plans. (Jun. Progressive Architecture, p. 73)

PLANNING

Observations on Latin America—RICHARD J. NEUTRA, ARCHITECT. Review of architectural and planning trends in the Latin American republics. Sketches by the author. (May Progressive Architecture, p. 67)

City

Indianapolis Meets the Challenge — JOHN F. SEMBOWER. The initial project in the redevelopment of this entire city, without state or federal money, is now under way. Sketch. (Spring Housing Progress, p. 17)

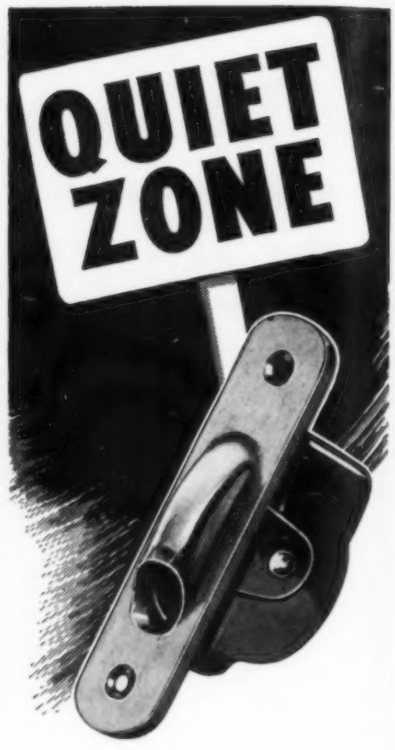
Omaha Gets City Improvement and Development Plan—ARTHUR W. JOHNSON. 17 civic committees cooperated in outlining developments to total approximately 43 million dollars, with projects described in the program as "urgent," "necessary," or "desirable." Diagrammatic sketch. (May The American City, p. 116)

Birkenhead, A New Plan—SIR CHARLES REILLY AND N. J. ASLAM. Review of the new plan for this important commercial center, followed by an explanation of the hexagonal planning proposed for some residential areas and some editorial criticism of same. Photos, maps, site plans. (The Architects' Journal for May 9, p. 359)

Marblethorpe and Sutton-On-Sea: Replanning of the Foreshore—G. A. JELLICOE. Redevelopment scheme to serve the permanent residents and create the informal atmosphere required by vacation visitors. Photos, schematic diagrams, site plans. (The Architects' Journal for Jun. 6, p. 429)

Warsaw's New Plan. After waves of Nazi destruction, Warsaw plans for reconstruction. Photos, schematic arrangements, plot plans. (Jun. The Architectural Forum, p. 106)

(Continued on page 110)



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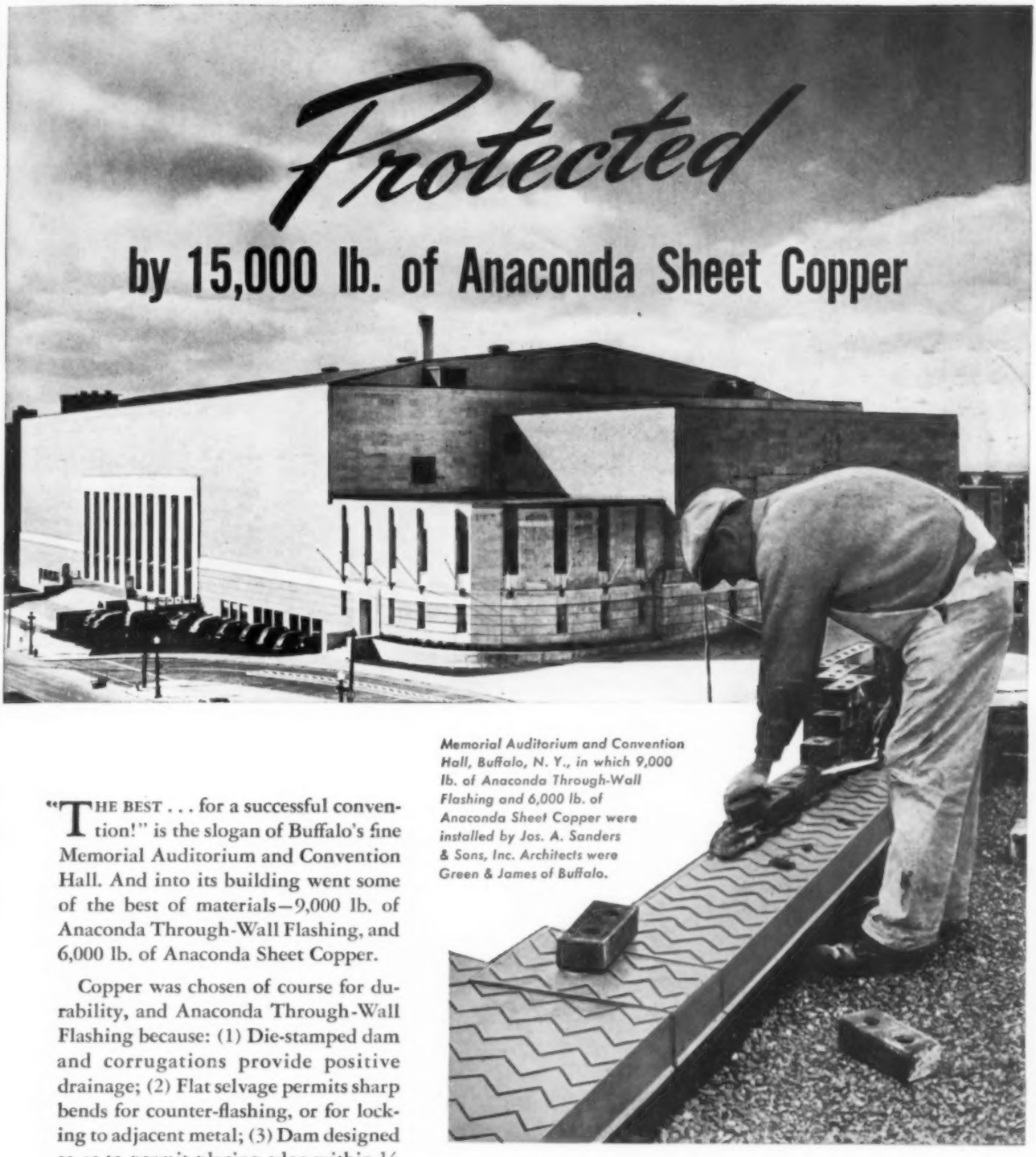

Memorial Auditorium and Convention Hall, Buffalo, N. Y., in which 9,000 lb. of Anaconda Through-Wall Flashing and 6,000 lb. of Anaconda Sheet Copper were installed by Jos. A. Sanders & Sons, Inc. Architects were Green & James of Buffalo.

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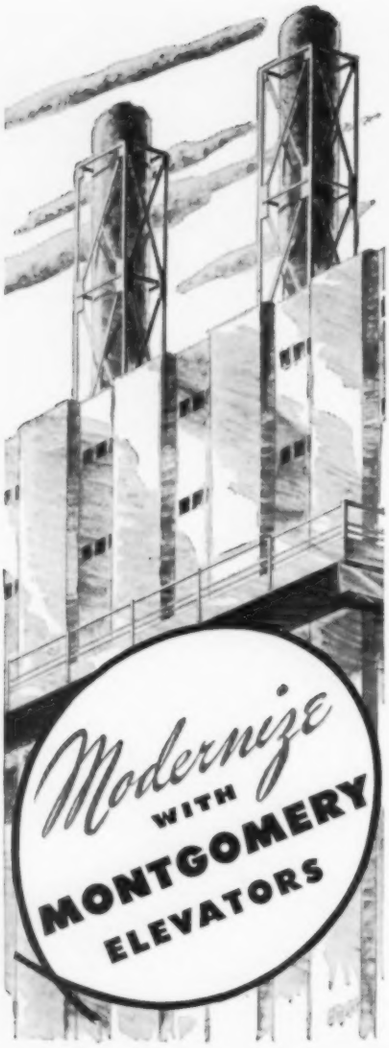

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GUIDE

(Continued from page 108)

Community

Manchester Plans Neighborhood Units—JARROLD & SONS, LTD. Proposed plan to house 10,000 persons at a gross density of less than seven families per acre. Plot plan. (May The American City, p. 120)

Regional

The Black Country: Proposals for the Use of Derelict Land—MINISTRY OF TOWN AND COUNTRY PLANNING. Review of the recently published report on the problem of derelict land in England, defined as "land which has been so damaged by extractive or other industrial processes or by any form of urban development that in default of special action it is unlikely to be effectively used again within a reasonable time and may well be a public nuisance meantime." Photos, maps. (The Architects' Journal for Apr. 25, p. 321)

United Nations

The House of Nations—A Competition for the U.N. Headquarters. **Domus** answer's **Progressive Architecture's** proposal for an international competition with inspiring, hopeful words and definite, immediate action. Photos. (Mar. Domus, p. 2)

RECREATION

Architecture for Leisure—HUBERT E. BIRD. A well known British broadcaster reports on the successful building of holiday camps for the lower paid workers by the Workers' Travel Assoc. in England, and the role that planning and architecture have played in this success. Photos. (Apr. Architect and Engineer, p. 16)

RELIGION

Churches

The Church for St. Marks in the Valley—WINSOR SOULE & JOHN FREDERICK MURPHY, ARCHITECTS. Model of new Episcopal church to be focal point of valley around Santa Barbara, Calif. Photo. (Apr. Architect and Engineer, p. 11)

The Seabee Chapel—BRUCE GOFF, ARCHITECT. An interesting example of the originality that can be effected with regulation Navy Quonset huts as the main contingents of a structure. Using redwood, plywood, and brick for interior and exterior decoration, the 200-ft. building avoids a tunnel effect by means of an intersecting brick pylon partly separating chapel and rear library, and skilful interior lighting. Photos, elevations, floor plans. (May Architectural Design and Construction, p. 123)

Community Church, Baldwin Hills Village, Calif.—ROBERT E. ALEXANDER, ARCHITECT. Flexible planning was of importance in solving this problem of a church for a growing community. Photos, plot plan. (May Arts and Architecture, p. 36)

TECHNICAL

Materiaux Et Techniques. Entire issue of **L'Architecture D'Aujourd'Hui** devoted to a careful and complete study of the new building materials and techniques of construction being used in France today. (Mar.)

TRANSPORTATION

Airlines

Toledo's Airport Terminal Features Glass—FRED MORRIS; FORSTER, WERNERT & TAYLOR, ARCHITECTS. Unobstructed view of the airport runways by passengers and visitors will be accomplished in this design by use of an entire "window wall" across the first floor lounge, cocktail lounge, and the landing-field side of the second floor dining room, totaling 136 feet of glass in all. Renderings. (Jun. The American City, p. 15)

Car Parks

"Car Park Under a Square"—S. H. STATHAM, ARCHITECT. This design is an application of the Baldwin-Auger me-

(Continued on page 112)

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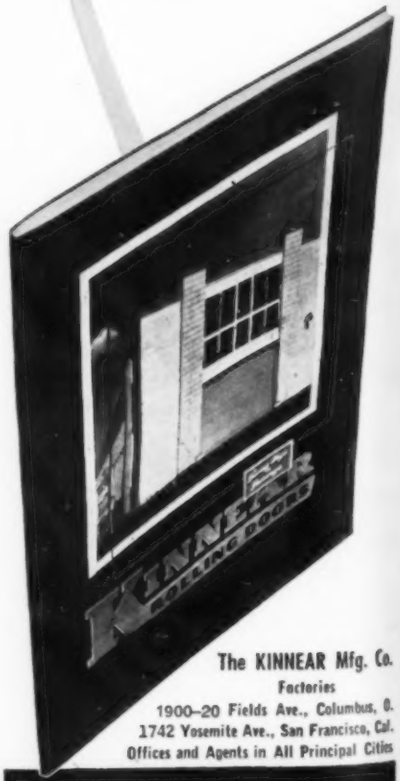

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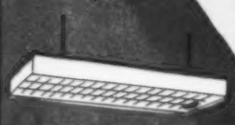

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GUIDE

(Continued from page 110)

chanical carparking system, and consists essentially of autoactuated floor space. (Mar. Architectural Design and Construction, p. 86)

Garages

Lift Garage in Athens—R. KOUTSOURIS, DESIGNER. Erected just before the war, this garage is designed to hold 100 cars which, by means of a circular turntable and elevators, are hoisted to upper floors, onto a movable platform, and then to a final parking place. Photos, floor plans, cross section. (The Architects' Journal for May 9, p. 363)

NOTICES

BENJAMIN S. SHEINWALD, General and Consulting Architect, announces the reopening of his offices at 85 South St., Boston, Mass.

The office of MATTHEWS M. SIMPSON, Architect, is now located at 95 Summit Ave., Summit, N. J.

GORDON S. MARVEL, recently returned from duty with Corps of Engineers, A.U.S., announces the opening of an office for the resumption of the practice of architecture at 67 Second St., Newburgh, N. Y.

CARL A. MULVEY AND ASSOCIATES, Architects and Engineers, have opened an office at 1514 Chenevert St., Houston, Tex.

ALBERT MELNIKER, Architect, has reopened his office at 130 Bay St., Staten Island, N. Y.

H. E. GOODPASTER has resumed the practice of architecture at Mitau Bldg., 1105 8th St., Sacramento, Calif., after three years in the U. S. Marine Corps.

WILLIAM J. FOX, JR., Architect, has opened offices at Wilma Bldg., Missoula, Mont., after five years in the Navy.

LEON BROWN, Architect, has opened an office at 1129 Vermont Ave., N.W., Washington, D. C.

PAUL M. SPEAKE, Architect, has opened a temporary office in the Old Post Office Bldg., Huntsville, Ala.

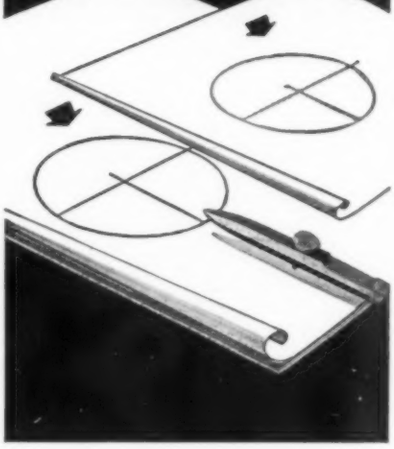
JOHN M. KOKKINS and A. C. LYRAS announce the formation of a partnership for the general practice of architecture at 4-6 Platt St., New York, N. Y.

DANIEL, MANN & JOHNSON, Architects, of No. 15 Motta Bldg., Santa Maria, Calif., have opened an additional office at 672 S. Lafayet Park Place, Los Angeles, Calif.

E. PAUL HAYES, Architect, has opened an office at 128 W. Kirk Ave., Roanoke 11, Va.

(Continued on page 114)

Tracing cloth that defies time



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NOTICES

(Continued from page 112)

OWEN F. SMITH, Architect, has opened an office at 2730 Anderson Drive, Raleigh, N. C.

E. HARRY MAGNUSON, Architect, has reopened his office at 427 Lyman Bldg., Muskegon, Mich., after the fire which destroyed his former office.

DAMON O. RUNYAN and ANGUS E. SLEE, Engineers, have reopened their office in Longmont, Colo., following discharge from the armed forces.

C. HERBERT MULLEN, Architect, has opened an office in the Joplin National Bank Bldg., Joplin, Mo.

SAMUEL GLASER, Architect, has moved to 105 Newbury St., Boston, Mass.

RALPH BRYAN, Architect, has resumed his practice with offices temporarily in the Construction Bldg., Dallas, Tex., after four years in the Civil Engineering Corps of the Navy.

E. CARLETON GRANBERY, JR. and DIANA ALLYN GRANBERY have opened an office for the practice of architecture at 34 Livingston St., New Haven 11, Conn.

KENNETH W. DALZELL and K. WHITNEY DALZELL, JR. have formed a partnership for the general practice of architecture under the firm name of DALZELL & DALZELL, Architects, Dalzell Bldg., Millburn Ave., Short Hills, N. J.

LEO ROSELYN and LLOYD GARTNER have formed a partnership under the name of ROSELYN & GARTNER, 821 Market St., San Francisco 3, Calif., to provide a comprehensive service in the field of architecture and modern design.

SAMUEL D. COOPER and C. REGINALD PERRY announce the formation of the firm of COOPER & PERRY for the practice of architecture and engineering with offices at 204 Journal Bldg., Knoxville, Tenn.

CHARLES F. OBENHACK, Architect, announces that he will be associated with KENNETH L. TRUMBLE, recently returned from the Pacific, at 505-506 Elderfield & Hartshorn Bldg., Niagara Falls, N. Y.

RAYMOND LOEWY ASSOCIATES, Industrial Designers, have added three architects to the store planning division of their Chicago office in the Palmolive Bldg. They are RAY STUERMER who has been appointed architectural project designer, HAROLD SCHAFER and J. ALBERT JOHNSON, retail store planners.

GEORGE M. TRAUTMAN, chairman of the American Commission for Living War Memorials, has announced the appointment of HAROLD BUSH-BROWN as one of its advisory architects, to serve in the place of the late WILLIAM J. SAYWARD.

RENE D'HARNONCOURT, a vice-president of the Museum of Modern Art, has been appointed UNESCO Senior Counselor of Visual Art by JULIAN HUXLEY, executive secretary of the Preparatory Commission.

DERRICK AND GAMBER, Hammond Bldg., Detroit 26, Mich., announce that WILLIAM H. ODELL is now an associate member of the firm.

CREDIT TO ENGINEER

Structural computations for the stairway in Stern Hall, University of California, detailed on page 62 of our May issue, were by A. V. Saph, Jr., we learn from Theodore C. Bernardi, one of the associated architects for the building. Saph was the structural engineer.

ASSOCIATES ANNOUNCED

Credit for design of Gallen Kamp's Shoe Store, Los Angeles, which was published in the July 1946 issue should have included the names of Michael Auer and R. L. Baumfeld, as Associates of Gruen and Krummeck, Designers.

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State .....

OBSERVATIONS

MUST ARCHITECTS' OFFICES LOOK LIKE THE CUSTOMERS' ENTRANCE TO A SMALL-TOWN LUMBERYARD? I've just returned from a trip during which I visited architects in seven small cities and one large metropolis. I think the strongest impression that I bring back with me is that architects generally present a pretty poor face to that part of the public which visits their offices. The average office that I saw had a very tiny reception space, painted whatever color the building management pleased, furnished with an ugly table and an uncomfortable chair, decorated with several renderings, in the style of 1920, of projects which have no relation to the sort of work now being designed in the office.

No doctor, dentist, real estate operator, lawyer—no other professional or businessman, would dare conduct his affairs with so little regard to physical appearances. Let's start a campaign to modernize architects' business quarters. Some of the boys have done it (Reisner & Urbahn, for instance, as illustrated on page 77 of June PROGRESSIVE ARCHITECTURE). The few offices I've seen that are well designed and reasonably furnished—and the best ones have been done very inexpensively—must be paying off in increased business. At any rate, it's common to find the proprietor of an attractive office frantically busy and the man in a rat hole wishing for work. Which is cause or effect is hard to know, but there's certainly a connection.

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THE DESCENDANT OF A GREAT DESIGNER IS A PARTNER IN A WELL KNOWN FIRM. He was very kind and helpful as he discoursed about the role of the architectural magazine in present practice.

"I never look at the building presentations," he said. "I'm not interested in design." Slightly staggered, we asked whether the technical information was helpful.

"I never read technical articles in an architectural magazine," he replied. "I have access to much better information than any publication."

We asked him his sources, since we are always glad to learn. He wavered, weaved, weakened, and then came through with the knockout.

"To tell you the truth, anything I read in an architectural magazine goes in one ear and out the other."

For this gentleman's aural reading we are tempted to plan four blank pages each month. Why make life hard for him?

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THERE HAVE BEEN TIMES WHEN SUSPICIOUS ARCHITECTS IMPLIED THAT THE PRODUCERS' COUNCIL WAS LEADING THE A.I.A. BY THE NOSE. The following two news releases, received on the same day, should silence any such dark suspicions.

"The creation of a permanent National Housing Agency at this time would endanger the veterans' housing program . . . by centering attention of government housing officials on plans for socializing the building industry, Douglas Whitlock, chairman of the Advisory Board of the Producers' Council, said in a statement . . ."

"The American Institute of Architects approves the idea of coordinating government agencies having to do with the building and financing of housing, James R. Edmunds, Jr., President of the A.I.A., stated today . . . The benefits of coordination have been amply demonstrated since the start of the emergency and should be continued in some suitable form. . . ."

We applaud the A.I.A.'s stand, although Congress has decided to string along with the Producers' Council.

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IN FEBRUARY AND MARCH WE EXPERIMENTED WITH A NEW TYPE OF BINDING. It was supposed to make the magazine lie flat—instead it allowed all the pages to fall out. Another good idea gone sour; we're back to staples. Some complaining letters arrived, but the majority of comments have complimented us on making the material easy to file! Listen, people—we want you to go through each issue at least once, at least casually, before you take us apart and file us away.

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ONE OF THE DUTIES OF AN ARCHITECTURAL EDITOR IS TO BE PRESENT AT PRESS LUNCHEONS, OR PRESS COCKTAIL PARTIES, ANNOUNCING THE BIRTH OF A NEW PRODUCT OR THE REBIRTH OF AN OLD ONE. These affairs must be attended; they *might* be important. You go to the Perroquet Suite of the Waldorf or the Main Ballroom of the New Yorker, and you have cocktails (usually good) and perhaps a meal (invariably bad) with miscellaneous editors, reporters, free lance writers, and a few individuals who seem to spend all their time at such functions for no good reason except the liquor. Reason enough, maybe. Scattered through the assembly are representatives of the advertising agency that is promoting the gadget, and distributors who are going to sell it. So it isn't safe to confide to a stranger that you've forgotten what's being presented this time, that you're bored, or that you think the product won't set the world on fire. Unless you don't care whose feelings you hurt.

After the cocktails, and perhaps the meal, the general sales manager of the sponsor talks (six minutes) on what a great volume of production will be reached after strikes end and OPA is finally killed. Then the chief designing engineer talks (four minutes) on the talent and imagination that went into the new product. A bored young man from the *New Yorker* plays with his fork. An editor from a popular home magazine takes occasional longhand notes. The woman's page lady from the *New York Post* gets everything down in shorthand. Finally the item itself is paraded out and demonstrated. Recently I've seen paints scientifically mixed, an oil burner operated, and wallpaper smeared with catsup and then cleaned—all by handsome girls who looked silly and self-conscious.

As you leave, you're handed a press release, four glossy photographs for reproduction, and a mimeographed copy of the speech by the general sales manager. If it's really news, you see it soon as an item on the This Month's Products page in PROGRESSIVE ARCHITECTURE. As I said, the cocktails are usually good.

Thomas H. Creighton